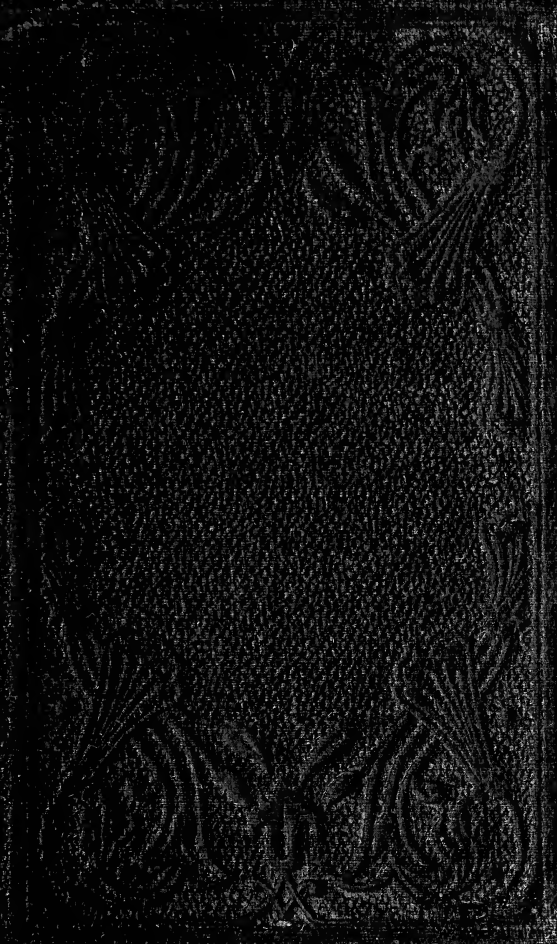




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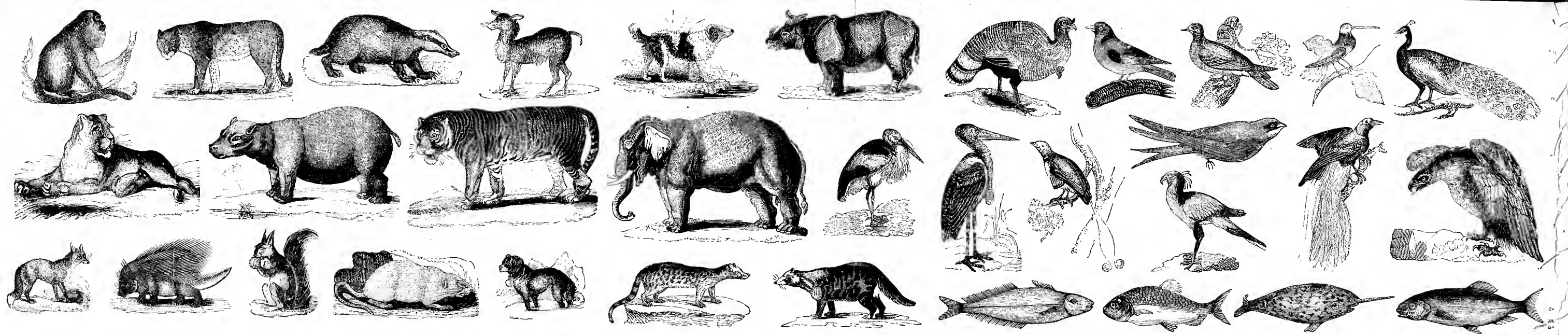
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*W. J. T. An. ER*

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# BUFFON'S NATURAL HISTORY:

CONTAINING

A FULL AND ACCURATE DESCRIPTION

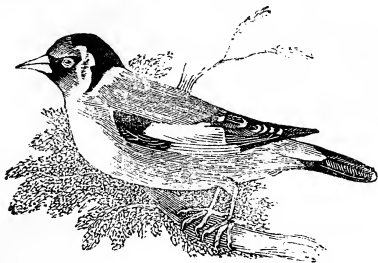
OF THE

ANIMATED BEINGS IN NATURE.

IN THREE PARTS.

**QUADRUPEDS—BIRDS—FISHES.**

ILLUSTRATED BY NUMEROUS ENGRAVINGS.



HALIFAX:

MILNER AND SOWERBY.

William Janss

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# BUFFON'S NATURAL HISTORY.

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## CHAPTER I.

### CARNIVOROUS ANIMALS.

The Lion—The Tiger—The Panther, Ounce, and Leopard—  
The Jaguar—The Cougar—The Lynx—The Caracal—  
The Hyæna—The Civet and Zibet—The Gennet.

ANIMALS which have but one stomach, and whose intestines are short, are forced, like man, to feed on flesh. Of this affinity, and of this truth, we shall receive certain information by a relative comparison of the size of the intestinal canal in carnivorous animals, and in those that live solely on herbage. We shall then find that the difference in their manner of living depends solely on the difference in their conformation, and that their nourishment is more or less solid as the receptacle for it is more or less capacious.

Hence, however, it is not to be concluded, that those animals which live solely on herbage are, from physical necessity, as carnivorous are with respect to flesh, absolutely confined to one kind of sustenance. It is only to be understood, that those which have several stomachs, or large intestines, may be sup-

ported without this substantial aliment, so necessary to others. It is not meant that they might not use it, or that if Nature had furnished them with arms, not only for the purpose of self defence but for those of attack and rapine, they would not have exerted them, and soon accustomed themselves to flesh and blood : since we find that sheep, calves, goats, horses, greedily eat milk and eggs, which are animal food, and that, unaided by custom, they do not refuse meat which has been hashed and seasoned with salt.

Without a violation of truth, then, it may be said, that the general predominant appetite of animals is for flesh and other solid food, and that this appetite is more or less vehement, more or less moderate, according to the particular conformation of each animal ; since, on taking a full view of Nature, we find it not only in man, but in quadruped animals, in fishes, in insects, and in worms, for which, indeed, all flesh seems to be particularly and ultimately destined.

### THE LION.

It has been remarked, that in all hot climates the terrestrial animals are larger and stronger than in cold or temperate ones. They are also bolder and more ferocious, all their natural qualities seem to partake of the ardour of the climates in which they live. The lion, born beneath the burning sun of Africa, or of India, is above all others the fiercest and most terrible. Our wolves, or other carnivorous animals, far from being his rivals, are hardly worthy to be his providers. The lions of America, if indeed they deserve to be called lions, are, like the climate in which they are produced, infinitely milder than those of Africa ; and what plainly proves that the degree of fierceness in this animal depends on the

degree of heat, is that even in the same country, those which inhabit the high mountains, where the air is more temperate, are different in disposition from those that dwell in the plains, where the heat is excessive.



The outward form of the lion seems to speak the superiority of his internal qualities. His figure is striking, his look confident and bold, his gait proud, and his voice terrible. His stature is not overgrown, like that of the elephant or the rhinoceros; nor is the shape clumsy like that of the hippopotamus or the ox.

His force and muscular power he manifests outwardly by his prodigious leaps and bounds; by the strong and quick agitation of his tail, which alone is sufficient to throw a man on the ground; by the facility with which he moves the skin of his face, and

particularly that of his forehead, which adds greatly to his physiognomy, or rather to the expression of fury on his countenance; and lastly, by the facility he has of shaking his mane, which is not only bristled up, but moved and agitated on all sides when he is enraged.

The largest lions are about eight or nine feet in length, from the snout to the insertion of the tail, which is of itself four feet long; and these large lions are about four or five feet in height. Those of the small size are about five feet and a half in length, and three and a half in height. In all her dimensions, the lioness is about one fourth less than the lion.

The lion is furnished with a mane, which becomes longer in proportion as he advances in age. The lioness, however, is without this appendage at every age.

Both the ancients and the moderns allow that the lion, when newly born, is in size hardly superior to a weasel; in other words, that he is not more than six or seven inches long; and if so, some years must necessarily elapse before he can increase to eight or nine feet. They likewise mention that he is not in a condition to walk till two months after he is brought forth; but, without giving entire credit to these assertions, we may, with great appearance of truth, conclude, that the lion, from the largeness of his size, is at least three or four years in growing, and that, consequently, he must live seven times three or four years, that is, about twenty-five years.

The lion, when hungry, boldly attacks all animals that come in his way; but, as he is very formidable, and as they all seek to avoid him, he is often obliged to hide, in order to take them by surprise. For this purpose he crouches on his belly, in some thicket or long grass, which is found in many parts of the forest. In this retreat he continues, with patient ex-

pectation, until his prey comes within a proper distance; and he then springs after it with such a force that he often seizes it at the first bound. If he misses the effort, and in two or three reiterated springs he cannot seize his prey, he continues motionless for a time, seems to be very sensible of his disappointment, and waits for a more favourable opportunity. He devours a great deal at a time, and generally fills himself for two or three days to come. His teeth are so strong that he very easily breaks the bones and swallows them with the rest of the body.

He drinks as often as he meets with water, lapping like a dog. He generally requires about fifteen pounds of raw flesh every day, and seldom devours the bodies of animals when they begin to putrefy; but he chooses rather to hunt for fresh-spoil than to return to that which he had left half devoured before. While young and active, the lion subsists on what he can obtain by the chase, and seldom quits his native deserts and forests; but when he becomes old, heavy, and less qualified for exercise, he approaches the habitation of man, to whom, and to domestic animals, he then becomes a more dangerous enemy. It is observed, however, that when he sees men and animals together, it is always on the latter, never on the former, that he vents his fury; unless indeed he should be struck, and then, never at a loss to know whence the blow came, he instantly deserts his prey in order to obtain revenge for the injury. The flesh of the camel he is said to prefer to that of any other animal. He is likewise exceedingly fond of that of young elephants, which, from their inability to resist him till they have received the assistance of their tusks, he easily despatches when unprotected by the dam; nor are there any animals able to oppose the lion but the elephant, the rhinoceros, the tiger, and the hippopotamus.

The flesh of the lion is of a strong and disagreeable flavour; yet the Negroes and the Indians do not dislike it, and it frequently forms a part of their food.



### THE TIGER.

IN the class of carnivorous animals the lion is the foremost. Immediately after him follows the tiger; which, while he possesses all the bad qualities of the former, seems to be a stranger to his good ones. To pride, to courage, to strength, the lion adds greatness, and sometimes, perhaps, clemency; while the tiger, without provocation is fierce, without necessity is cruel. Thus it is throughout all the classes of nature, in which the superiority of rank proceeds from the superiority of strength. The first class, sole masters of all, are less tyrannical than the inferior classes, which, denied so full an exertion of authority, abuse the power entrusted to them.

The form of the body usually corresponds with the nature, the disposition of the animal. The tiger, with a body too long, with limbs too short, with a head uncovered, and with the eyes ghastly and hag-

gard, has no characteristics but those of the basest and most insatiable cruelty.

The tiger is found in Malabar, in Siam, in Bengal, and in all the countries which are inhabited by the elephant and rhinoceros. Dellon in his travels assures us that there is no country of India in which tigers so much abound as Malabar, that there the species are numerous, but that the largest is that which the Portuguese call the *Royal Tiger*, which is very rare, and is as large as a horse.

The species of the tiger has always been much rarer, and much less generally diffused, than that of the lion. Like the lioness, nevertheless, the tigress produces four or five young ones at a birth. From her nature she is fierce at all times; but when surrounded with her infant progeny, and in the smallest danger of losing them, her rage, her fury, becomes extravagant. To oppose the daring invaders of her den, she braves every danger. On such occasions, she pursues the spoiler with an enmity the most inveterate; and he, contented to lose a part, in order to save a part, is frequently obliged to drop one of her cubs. With this she immediately returns to her den and again pursues him; he then drops another; and by the time she has returned with that, he generally escapes with the remainder. Should her young ones be torn from her entirely, with hideous cries she expresses her agony, her despair, and follows the captor to the very town or ship in which he may have taken refuge, and dares him, as it were, to come forth.

The skins of these animals are much esteemed all over the East, particularly in China.

## THE PANTHER, OUNCE, AND LEOPARD.



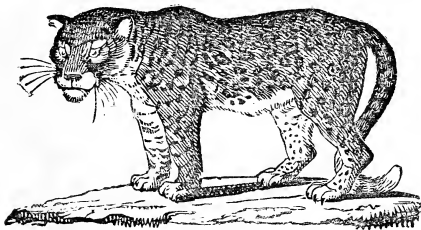
THE first of these species which exist on the Old Continent, is the large panther, which we shall call *panther*, which the Greeks distinguish by the name of *pardalis*, the ancient Latins, first by the name of *panthera*, afterwards by that of *pardus*, and the modern Latins by the name of *leopardus*. The body of this animal, when it has attained its full growth, is five or six feet in length from the tip of the nose to the insertion of the tail, which is above two feet long. Its skin is of a yellow hue, more or less dark on the back and sides, and whitish under the belly; it is marked with black spots annular, or in the form of beads; of these rings the generality have one or more spots in the centre, of the same colour as the outward edge of the ring; some of them are oval, and others circular; and they are frequently above three inches in diameter.

The OUNCE, the second species, is the small panther of Oppian, which our modern travellers have called *ounce*, or *onza*, corruptly from the name *lynx*, or *lunx*. To this animal we shall preserve the name of *ounce*, which, as it has in fact some affinity to the





lynx, seems to be properly applied. The hair of the ounce, as also its tail, are longer than those of the panther. The latter frequently measures above three feet; though the body of this animal is in all at least a third less than that of the panther, whose tail does not measure more than two feet or two and a half at most. The hair of the ounce is of a whitish grey upon the back and sides, and of a grey still whiter under the belly; whereas the back and sides of the panther are of a yellow more or less deep. In both, however, the spots are nearly of the same form, and of the same size.



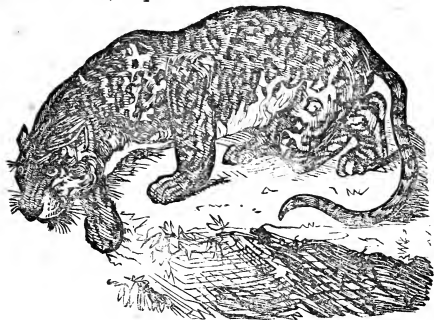
The LEOPARD is the third species, which is unnoticed by the ancients, as it belongs to Senegal, to Guinea, and to other southern countries which they had not discovered. This animal we shall call *leopard*; a name which has been improperly applied to the large panther, but which, following the example of the generality of travellers, we shall never use except to denote the above mentioned animal of Senegal. It is somewhat larger than the ounce, but considerably smaller than the panther, being only four feet in length. The tail measures two feet or two feet and a half. On the back and sides the hair is of a yellow colour, more or less deep; under the belly it is whitish; the spots are annular, but smaller and less regularly disposed.

As each of these animals is different from the other so each forms a separate species. Our furriers call the skins of the first species panther skins, a name, which, as it is established by use, we shall not change; those of the second species they call African tiger skins, which, being an equivocal name, we have set aside, and adopted that of *ounce*; lastly, they improperly call tiger skins the skins of the animal to which we have here given the denomination of *leopard*.

The species of the ounce seems to be more numerous, as well as more generally diffused, than that of the panther. In Barbary, in Arabia, and in all the southern parts of Asia, Egypt perhaps excepted, it is very common. Even in China it is not unknown, and there it is distinguished by the name of *hinen-pao*.

The ounce is easily tamed, and is employed for the chase in the hot climates of Asia, where the dog is an animal rarely to be found, not to be found at all indeed, unless introduced from other parts; and

then it not only loses its voice but its instinct. Besides, the panther, the ounce, and the leopard are alike remarkable for bearing an insuperable antipathy to dogs; them, indeed, they seem to hunt for, and to attack, in preference to all other animals.



### THE JAGUAR

RESEMBLES the ounce in size, and for the most part in the form of the spots with which his skin is diversified. In disposition he also resembles him. He is less terrible, less ferocious than the panther and leopard. The ground of his colour, like that of the latter, is a bright yellow, and not grey, like that of the ounce. His tail is shorter than that of either of those animals; his hair is longer than the panther's, but shorter than that of the ounce; it is frizzled while he is young, but smooth and straight when he attains his full growth.

The jaguar lives by prey like the tiger; but a lighted torch will put him to flight, will deprive him of

all courage, all vivacity ; and on such occasions, especially if already satiated, one dog alone is sufficient to give him chase. He seems in all respects to partake of the indolence arising from the nature of the climate ; nor does he discover any activity or alertness unless when pressed by hunger.

### THE COUGUAR

Is equal in length, but inferior in thickness to the jaguar. He has a small head, a long tail, short hair, which is nearly of one entire colour—a lively red, intermixed with a few blackish tints, particularly on the upper part of the back. His chin is whitish, as are also his neck and all the inferior parts of his body. Though less strong than the jaguar, he is yet to the full as fierce, and perhaps more cruel. He appears to be yet more greedy of prey ; nor, when once seized, does he ever offer to relinquish it, till he has fully glutted his appetite and his blood-thirsty fury.

This animal is not uncommon in Guiana. Formerly couguars were known to swim over in numbers to the island of Cayenne, in order to attack and devour the flocks, insomuch that they were considered as a scourge to the colony. By degrees, however, the settlers lessened their number, and at length they completely drove those that remained far from their habitations.

The couguar, by the agility of his body, and the length of his legs, seems calculated to run and climb trees better than the jaguar. They are both equally remarkable for sloth and cowardice when once glutted with prey ; and seldom are they known to attack men, unless when they find them asleep. They delight in the lofty shades of forests, where they hide themselves in the covert of some thick trees in order to dart forth on such animals as pass by.



## THE LYNX

Is an animal more commonly found in cold than in temperate climates, and is at least very rare in hot ones. It was known to the Greeks and to the Latins. Pliny says that the first that were seen in Rome were brought in the time of Pompey, from Gaul. At present they are not seen in France, a few perhaps excepted belonging to the Alpine and Pyrenæan Mountains. But the Romans, under the name of Gaul, comprehended several northern countries; and besides, it is an acknowledged truth, that modern France is by no means so cold as was ancient Gaul.

The most beautiful skins of the lynx are brought from Siberia, as belonging to the *lupus cervarius*; and from Canada, as belonging to the *felix cervarius*; because being, like all other animals of the New Continent, smaller than those of the Old World, in Europe they are compared to a wolf in size, and in Canada to a wild cat.

The lynx has short legs, and is generally about the size of a fox. It differs from the panther and the ounce in the following particulars: it has long hair, its marks or spots are of a colour less lively, and are

badly disposed ; its ears are surrounded at the extremity by a stripe, or rather tuft, of black hair ; its tail, which is much shorter, is black at the tip ; its eyes have a whitish cast, and its countenance has something in it more agreeable and less ferocious. The skin of the male is more beautifully marked than that of the female. It does not walk or run like the wolf in a progressive motion, but leaps and bounds like a cat. It gains its whole subsistence by devouring other animals ; and these it will pursue to the very tops of trees. Neither can the wild cat, the martin, the ermine, nor the squirrel escape its pursuit. It also seizes birds, lies in wait for the stag, the roebuck, and the hare, and with one bound often seizes them by the throat. When in possession of its prey, it first sucks the blood of the animal, and then lays open his head in order to devour the brains. This done, it generally abandons the victim of its fury, goes in search of fresh prey, and is seldom known to return to the former ; a circumstance which has given rise to the vulgar remark, that of all the animals the lynx has the shortest memory. The skin of this animal changes its colour according to the season and the climate. In winter it is in every respect better than it is in the summer ; and its flesh, like the flesh of all beasts of prey, it is not proper to eat.

### THE CARACAL.

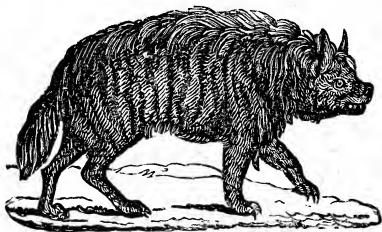
**THOUGH** the caracal resembles the lynx in size, in the formation of the body, the aspect of the head ; and though, like that animal, it seems to have the peculiar, and almost singular characteristic of a stripe of black hair at the extremity of the ears ; I do not scruple, nevertheless, from their disagreement in other respects, to treat of them as animals of different species.



The caracal is not spotted like the lynx; it has hair rougher and shorter, its tail is larger, and of an uniform colour, its snout is more elongated; in appearance it is less mild, and in disposition it is fiercer. The lynx is an inhabitant of the cold, or of most of the temperate regions; the caracal is only found in hot countries; and it is as much from their difference in disposition and climate that I have judged them to be of two different species, as from the inspection and comparison of the animals themselves.

The caracal is common in Barbary, in Arabia, and in all those countries which are inhabited by the lion, the panther, and the ounce; like them it depends on prey for its subsistence; but unlike them, from its inferior size, its inferior strength, to procure that prey it has much difficulty. Hardly, indeed, has it aught to subsist on but what the more potent carnivorous animals are disposed to leave for it. It keeps at a distance from the panther, because that animal exercises its cruelty even after he is satisfied with food; but it follows the lion, who, when the immediate cravings of his appetite are gratified, is of a disposition altogether unhostile. From the refuse of

what this noble animal has devoured, the caracal frequently enjoys a comfortable meal. Sometimes even while the other is in search of prey, depending on his agility in climbing trees, it accompanies him at a certain distance, and when self preservation seems to render it necessary, perching itself aloft, it braves the fury of the lion, who cannot ascend after it like the panther. For all these reasons it is that the caracal has been called, "the lion's guide," "the lion's provider;" and that the lion, whose smell is far from being acute, is said to employ this animal to find out prey for him by its scent, of which, for its trouble, it enjoys the remains when its master is satisfied.



### THE HYÆNA.

So striking, and even so singular are the characteristics of the hyæna, that it is hardly possible to be deceived by them. It is, perhaps, the only quadruped which has but four toes to either the fore or hind feet; like the badger it has an aperture under the tail, which does not penetrate into the interior parts of the body; its ears are long, straight, and bare; its head is more square, and shorter than that of the

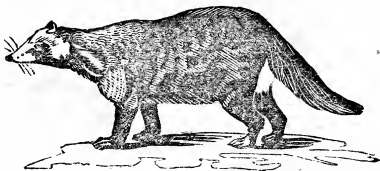


wolf; its legs, the hind ones especially, are longer; its eyes are placed like those of the dog; the hair of its body and its mane are of a dark grey, with a small intermixture of yellow and black disposed all along in waves; and though in size it equals the wolf, yet it has a contracted appearance, on which account alone it could ever have been considered as smaller than that animal.

This solitary creature resides in the caverns of mountains, in the clefts of rocks, or in dens which it has formed for itself under the earth. Though taken ever so young, it is yet incapable of being tamed. It lives by depredation like the wolf; but it is a stronger animal and seemingly more daring. It sometimes attacks man, carries off cattle, follows the flocks, breaks open the sheep-cotes by night, and ravages with a voracity insatiable. By night also its eyes shine; and it is maintained that he sees better than in the day. If we may credit all the naturalists who have treated of this animal, its cry resembles the sobs or reachings of a man in a violent fit of vomiting; but, according to Kæmpfer, who was an ear-witness of the fact, it sounds like the lowing of a calf.

The hyæna defends itself against the lion, stands in no awe of the panther, and attacks the ounce, which is incapable of resisting it. When at a loss for other prey, it scrapes up the earth with its feet, and devours the carcasses both of animals and men, which, in the countries that it inhabits, are interred promiscuously in the fields. We find this creature in almost all the hot climates of Africa, and of Asia, and it seems probable that the animal called *farasse*, at Madagascar, which resembles the wolf in figure, but which is larger, stronger, and more cruel, may, in fact, be the hyæna. A species is found at the

Cape of Good Hope, which is of a reddish brown, with round black spots, and is, on that account, called the *tiger wolf*.



### THE CIVET.

THE the generality of naturalists have been of opinion, that there is only one species of animals that furnishes the perfume called civet. Two animals that furnishes it, however, are easily distinguishable.

To the first of these animals I have appropriated its original name of *civet*; and to the second, for sake of distinction, I have given that of *zibet*.

The latter animal differs from the civet in having a body longer and less thick, a snout flatter, more slender, and somewhat concave at the upper part; its hair is much shorter and softer; it has no mane, no black under the eyes nor upon the cheeks. All these characteristics are peculiar to, and very remarkable in, the civet. Some travellers had already suspected that there were two species of civets; but no person had so distinguished them with sufficient accuracy to describe them.

These animals have been called *musk cats*, or civet cats; yet they have nothing in common with the cat. They rather resemble the fox, especially in the head.

Their coat is diversified with stripes and spots; a circumstance which has occasioned them to be mistaken for small panthers, by persons who had only seen them at a distance. In every other respect, however, they differ from the panther. The perfume of the civet is very strong, and that of the zibet is so to an excess.

This humour is found in the opening which each of these animals has in the neighbourhood of the parts of generation; and though the odour is so strong, it is yet agreeable, even when it issues from the body of the animal. The perfume of the civet we must not confound with musk, which is a sanguineous humour obtained from an animal altogether different from either the civet or the zibet.

The civets, though natives of the hottest climates of Africa and of Asia, are yet capable of living in temperate, and even in cold countries, provided they are carefully defended from the injuries of the air, and provided with delicate and succulent food. In Holland, where no small emolument is derived from their perfume, they are frequently reared. The perfume of Amsterdam is esteemed preferable to that which is brought from the Levant, or the Indies, which is generally less genuine. That which is imported from Guinea would be the best of any, were it not that the Negroes, as well as the Indians and the people of the Levant, adulterate it with laudanum, storax, and other balsamic and odorous drugs.

### THE GENNET

Is an animal smaller than the civet. It has a long body, short legs, a sharp snout, and a slender head. Its fur, which is exceedingly smooth and soft, is of an ash-colour, glossy, and marked with black stripes, which are separate upon the sides, but which unite

upon the back. It has also upon the neck a kind of mane, or longish hair, which forms a black streak from the head to the tail, which last is as long as the body, and is marked with seven or eight rings, from the insertion to the tip, which are alternately black and white.

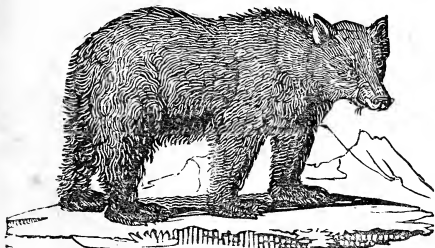


The gennet has under the tail, and in the very same place with the civets, an opening or pouch, in which is secreted a kind of perfume resembling civet, but less strong, and apt sooner to evaporate. It is an animal somewhat larger than the martin, which it strongly resembles, not only in the form of the body, but also in disposition and habit, and from which it seems chiefly to differ in being more easily tamed.

## CHAPTER II.

## CARNIVOROUS ANIMALS CONTINUED.

The Bear—The Beaver—The Racoon—The Coati.



## THE BEAR.

THERE is no animal more generally known than the bear, and yet there is none concerning which more differences and contradictions have been founded among the writers of natural history. These uncertainties have arisen from their not distinguishing properly the different species. The land bear must be distinguished from the sea bear, which is commonly known by the name of the white, or Greenland bear; and the land bear must again be divided into two species, the brown and the black. There are also white land bears found in Tartary, Russia, &c., which, though they resemble the sea bear in colour, differ from it in every other particular. It is not the rigour of the climate that makes them white in winter, like the hares and ermines; they are brought

forth white, and remain so all their lives. There are also found bears whose skins are a mixture of brown and black, which denote an intermediate species between the white land bear and the brown land bear.

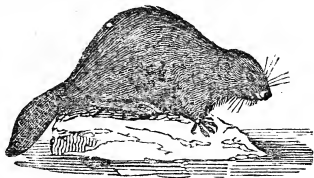
We meet with the brown bear very frequently, and with the black bear very rarely, on the Alps. In the forests of the northern countries of Europe and America, on the contrary, the black bear is very common. The former is both fierce and carnivorous; the latter is only fierce, and constantly refuses to eat flesh.

The bear is not only a savage but a solitary animal; he takes refuge in the most unfrequented parts, and the most dangerous precipices of uninhabited mountains. He chooses his den in the most gloomy parts of the forest, in some cavern that has been hollowed by time, or in the hollow of some old enormous tree. Thither he retires alone, and passes a part of the winter without provisions, or without even stirring abroad. He is not, however, entirely deprived of sensation like the dormouse, or the marmot, but seems rather to exist on the exuberance of his former flesh, and only feels the calls of appetite when the fat he had acquired in summer begins to be considerably wasted.

When this happens, which we are told generally does at the expiration of forty or fifty days, the male forsakes his den; but the female remains confined for four months, by which time she has brought forth her young.

Though the males of the brown species devour their new-born little ones when they find an opportunity for it, yet the females seem, on the contrary, to love them with a ferocious distraction. When once they have brought forth, their fury is more violent, as well as more dangerous, than that of the males.

This animal is capable of some degree of instruction. There are few who have not seen him stand on his hind legs, or with these dance in rude and awkward measure to tunes either sung or played upon an instrument. But even in thus tutoring him, it is necessary, in order to succeed, that the animal should be taken young, and held in constraint ever after. The bear enjoys the sense of seeing, hearing, and feeling, in great perfection; and yet, compared with the size of his body, his eye is very small, his ears are also short, his skin is coarse, and his hair very thick. His smell is exquisite, more so, perhaps, than that of any other animal, the internal surface of his nose being very extensive, and excellently calculated to receive the impression of smells. He strikes with his paws as a man strikes with his fists; but in whatever particulars they may bear a rude kind of resemblance to the human species, he is only rendered the more deformed by them; nor do they give him the smallest superiority over other animals.



THE BEAVER.

IN all countries, as man is civilized and improved, the lower ranks of animals are depressed and degraded. Either reduced to servitude or treated as rebels, all their societies are dissolved, and all their united talents rendered ineffectual. Their feeble arts quickly

disappear, and nothing remains but their solitary instincts, or those foreign habitudes which they receive from human education.

The beaver seems to be now the only remaining monument of that kind of intelligence in brutes, which, though infinitely inferior, as to its principle, to that of man, supposes, however, certain common projects, certain relative ends in view; projects which, having for their basis society, in like manner suppose some particular method of understanding one another, and of acting in concert

Of quadrupeds, the beaver alone has a flat oval tail, covered with scales, which serves as a rudder to direct its motions in the water. It is the only quadruped that has membranes between the toes on the hind feet, and at the same time none on the fore ones, which it uses as hands in carrying food to the mouth. It is the only one which, while it resembles a terrestrial animal in its fore parts, seems to approach the nature of an aquatic being in its hind ones.

The beavers begin to assemble in the month of June or July, in order to form a society which is to continue for the greatest part of the year. They arrive in numbers from every side, and presently form a company of two or three hundred. The place of meeting is commonly the place where they fix their abode, and this is always by the side of some lake or river. If it be a lake where the waters are always upon a level, they dispense with building a dam; but if it be a running stream which is subject to floods and falls, they then set about building a dam, or pier, that crosses the river, so as to form a dead water on that part which lies above and below. This dam, or pier, is often fourscore or a hundred feet long, and ten or twelve feet thick at the base. If we compare the greatness of the work with the power of the architect



it will appear enormous ; but the solidity with which it is built is still more astonishing than its size. The part of the river over which this dam is usually built, is where it is most shallow, and where some great tree is found growing by the side of the stream. This they pitch upon as proper for making the principal part of their building ; and, though it be thicker than a man's body, they instantly set about cutting it down. For this operation they have no other instrument but their four incisive teeth, which soon lay it level, and that also on the side they wish it to fall, which is always across the stream. They then set about cutting the top branches, to make it lie close and even, and serve as the principal beam of their fabric.

These operations are performed in common. At one time a number of beavers are employed together at the foot of the tree in gnawing it down ; and when this part of their labour is accomplished, it becomes the business of others to sever the branches, while a third party are engaged along the borders of the river or lake, in cutting other trees, which though smaller than the first tree, are yet as thick as the leg, if not the thigh, of a common-sized man. These they carry with them by land to the brink of the river, and then by water to the place allotted for their building ; where, sharpening them at one end and forming them into stakes, they fix them in the ground at a small distance from each other, and fill up the vacant space with pliant branches. While some are thus employed in fixing the stakes others go in search of clay, which they prepare for their purpose with their tails and their feet, and with which, brought home in large quantities, they render their structure still more compact.

This structure is so ingeniously contrived, that it has not only all the extent, and all the solidity which

are requisite, but also a form the most proper for confining the water, and, when it has passed its bounds, for maintaining its weight, or baffling its attacks. At the top of their dike or mole, that is, at the part where it is least thick, they form two or three openings. These they occasionally enlarge or contract, as the river occasionally rises or falls; and when, from inundations either too powerful or too sudden, their works have been damaged, they are, with the utmost diligence and application, on the retreat of the waters, immediately repaired.

After this display of their labours to accomplish a public work, it would be superfluous to add to it a description of their private constructions, were it not that in history an account should be given of every fact, and that, in this first grand work of the beaver, the intention uniformly was, that the little habitation of each family should be rendered more commodious.

This habitation is always furnished with two passages: one for the purpose of a land, and the other of a water excursion. In shape it is almost either oval or round: sometimes it is from four to five feet in diameter, and sometimes it consists of two, and even three stories, while the walls are always two feet thick. When it happens to consist of but one story, the walls are but a few feet high, over which there is a kind of vault that terminates the edifice, and serves as a covering for it. It is constructed with such solidity as to be impenetrable to the heaviest rains, to defy the most impetuous winds, and is plastered with such neatness, both outwardly and inwardly, that one might actually suppose it to be the work of man. These animals, nevertheless, use no instrument for the preparation of their mortar but their feet, or for the application of it but their tails. They chiefly use such materials as are not easily to be dissolved by

water. Their wooden work consists of such trees as grow on the banks of rivers, as these are most easily cut down, stripped of their bark, and carried; and all these operations they perform before they relinquish a tree which they have once attacked. They cut it at the distance of a foot, or a foot and a half from the ground. They sit as they work; and besides the advantage of this convenient posture, they have the pleasure of continually gnawing fresh bark and soft wood, both which they prefer to most other kinds of aliment. Averse to dry wood, they always provide an ample store of these for their subsistence during the winter. It is near their habitations that they establish their magazines; and to each hut or cabin there is one allotted, of a size proportioned to the number of its inhabitants, to which they have all a common right; nor do they offer to plunder their neighbours.

Hamlets, so to express them, have been seen composed of twenty, and even twenty-five dwellings. Such large settlements, however, are rare. In general they do not contain more than a dozen families, each of which has its own separate district, magazine, and habitation; nor will it allow any strangers to settle within its inclosure. The smallest dwellings contain two, four, and six; the largest eighteen, twenty, and it is even said thirty beavers; and it seldom or never happens that the number of males and females is not upon a par. Moderately speaking, therefore, their society may be said to consist frequently of 150 or 200 workmen, who, having first exerted their united industry and diligence in rearing a grand public work, afterwards form themselves into different bodies in order to construct private habitations.

However numerous the republic of beavers may

be, peace and good order are uniformly maintained in it. A common series of toil has strengthened their union; the conveniences which they have procured for each other, and the abundance of provision which, after having amassed, they continue to consume together, render them happy within themselves; and having moderate appetites, entertaining ever an aversion to blood and carnage, they have not the smallest propensity to hostility and rapine, but actually enjoy all the blessings which man is only born to desire. Friends to each other, if threatened by any enemies from abroad, they know how to avoid them; and, for this purpose, on the first alarm they give notice of their mutual danger by striking the water with their tails, which sends forth a sound that is heard in their most distant dwellings. On this occasion each beaver, as he thinks most expedient, plunges into the water, or conceals himself within the walls of his own habitation, which is in no danger but from the fire of the angry heavens, or from the weapons of man, and which no animal dares attempt to open or overturn.

These asylums are not only secure, but also neat and commodious. The floor is covered with verdure, young and tender branches of trees serving them for a carpet, on which they never permit any of their excrements to be left. The window which fronts the water serves them for a balcony, from which they enjoy the fresh air, and bathe themselves the greatest part of the day. In the water they remain in an upright posture, the head and fore parts only being visible. This element is, indeed, so necessary to them, or rather gives them so much pleasure, that they seem unable, as it it were, to live without frequent immersions in it. Sometimes they go to a considerable distance under the ice; then they are

easily taken, by attacking the dwelling on one hand, and lying in wait for them, at the same time, at a hole which is purposely formed a little way off in the ice, and to which they are obliged to come for breath.

The females are said to go four months with young. They bring forth about the close of winter, and their number generally consists of two or three at a time. Nearly at this period the males leave them, and go forth into the fields, where they enjoy all the sweets of spring. In this season they pay occasional visits to their habitation, but never reside in it. There, however, the females remain employed in suckling, tending, and rearing their little ones, who are in a condition to follow them at the end of a few weeks. They then in their turn go abroad, where they feed on fish, or on the bark of young trees, and pass the whole of their time upon the water, or in the woods.

We meet with beavers in America from the thirtieth degree of north latitude to the sixtieth, and even beyond it. In the northern parts they are very common; and the farther south we proceed, their number is still found to decrease. The same observation holds with respect to the Old Continent; we never find them numerous but in the more northern countries; and in France, Spain, Greece, and Egypt, they are exceeding rare. The ancients knew them, and by the religion of the Magi it was forbidden to kill them.

Independently of the fur, which is indeed the most valuable article furnished by the beaver, this animal furnishes a substance that has been considerably used in medicine. This substance which is known by the name of castor, is contained in the bladder.\* The

\* It is pretended that the beavers extract the liquid which is contained in these bladders, by pressing them

savages, it is said, obtain an oil from the tail of the beaver, which they employ as a topical remedy for different complaints. The flesh of this animal, though fat and delicate, is yet bitter, and disagreeable to the palate.



### THE RACCOON

Is an animal about the same size as a small badger; its body is short and bulky; its fur is fine, long, thick, blackish at the surface, and grey towards the bottom; its head is like that of a fox, but its ears are round and shorter; its eyes are large, of a yellowish green, and over them there is a black and traverse stripe; its snout is sharp, its tail is thick, but tapering towards a point, and marked alternately from one end to the other with black and white rings, and is at least as long as the body; its fore legs are shorter than the hind ones, and both are armed with five strong sharp claws.

This animal uses its paws to hold its food while eating; and its pointed claws enable it to climb trees with great facility.

with the foot, and that it gives them an appetite when they are averse to food. The truth, however, seems to be, that the animal uses this liquid in order to grease its tail.

The racoon is a native of the southern countries of America and the West Indies, nor has it ever been found in any part of the Old Continent.

## THE COATI.

THIS animal, of which we are now about to treat, many authors have called *coati-mondi*. It is very different from the animal described in the preceding article. It is of a smaller size than the racoon; its body and neck, its head and nose, are of a more lengthened form; its upper jaw is an inch, or an inch and a half, longer than the lower one; and its snout, which is moveable in every direction, turns up at the point. The eyes of the coati are also smaller than the eyes of the racoon; its hair is longer and coarser, its legs are shorter, and its feet longer; but, like the racoon, its tail is diversified with rings, and to all its feet there are five claws.

This animal has a practice of eating its own tail, which, when not mutilated, is longer than its body, and which it generally rears aloft, and can move with ease in any direction.

From this circumstance one general inference may be drawn, namely, that those parts which are elongated to a great degree, and of which the extremities are consequently very remote from the seat of the senses, from the centre of feeling, that feeling must be weak, and the more so the greater the distance and the smaller the part.

As for the coati in other respects, it is an animal of prey, which subsists on flesh and blood, which, like the fox, destroys small animals and poultry, hunts for the nests of little birds, and devours their eggs.

## CARNIVOROUS ANIMALS CONTINUED.

The Wolf—The Fox—The Badger—The Otter—The Martin—The Pine Weasel—The Polecat—The Ferret—The Weasel.



## THE WOLF

Is one of those animals whose appetite for animal food is the most vehement, and whose means of satisfying this appetite are the most various. Nature has furnished him with strength, with cunning, with agility, with all those requisites, in a word, which fit an animal for pursuing, overtaking, and conquering its prey; and yet, with all these, the wolf most frequently dies of hunger, for he is the declared enemy of man. Being long proscribed, and a reward offered for his head, he is obliged to fly from the habitations



of man, and to live in the forest, where the few wild animals to be found escape him either by their swiftness or their art, or are supplied in too small a portion to satisfy his rapacity. When pressed with hunger, however, he braves danger, and comes to attack those animals which are under the protection of man, particularly such as he can readily carry away, lambs, sheep, or even dogs themselves; for all animal food comes then equally agreeable. If this excursion has succeeded, he often returns to the charge, till, having been wounded, or closely pursued by the dogs or shepherds, he hides himself by day in the thickest coverts, and, for a while, only ventures out at night; but at last, when his necessities are very urgent, he attacks women and children, and sometimes ventures to fall even upon men; becomes furious by his continual agitations, and ends his life in madness.

The wolf, as well externally as internally, so nearly resembles the dog, that he seems modelled upon the same plan; and yet he only offers the reverse of the image. If his form be similar, his nature is different; and indeed they are so unlike in their dispositions, that no two animals can have a more perfect antipathy to each other. A young dog shudders at the sight of a wolf; a dog who is stronger, bristles up at the sight, testifies his animosity, attacks him with courage, endeavours to put him to flight, and does all in his power to rid himself of a presence that is hateful to him. They never meet without either flying from, or fighting with each other. If the wolf is the stronger he tears and devours his prey; the dog on the contrary, is more generous, and contents himself with his victory.

The dog, even in his savage state, is not cruel; he is easily tamed, and continues firmly attached to his master. The wolf, when taken young, becomes tame,

but never has an attachment. Nature is stronger in him than education; he resumes with age, his natural dispositions, and returns, as soon as he can, to the woods whence he was taken. There is not even any strong attachment between the male and female; they seek each other once a year, and remain but a few days together.

The difference in the duration of the pregnancy of the she-wolf, which goes with young above an hundred days, and the bitch, which does not go above sixty, proves, that the wolf and the dog, so different in disposition, are still more so in one of the principal functions of the animal œconomy.

The wolf generally brings forth five or six, and sometimes nine at a litter. The cubs are brought forth, like those of the bitch, with the eyes closed. The dam suckles them for some weeks, and teaches them betimes to eat flesh, which she prepares for them by chewing it first herself. They do not leave the den where they have been littered till they are six weeks or two months old. It is not however, till they are about ten or twelve months old, and till they have shed their first teeth and completed the new, that the dam thinks them in a capacity to shift for themselves. Then, when they have acquired arms from Nature, and have learned industry and courage from her example, she declines all future care of them, being then engaged in bringing up a new progeny. These animals require two or three years for their growth, and live to the age of nineteen or twenty.

The wolf has great strength, particularly in his fore-parts, in the muscles of his neck and jaw. He carries off a sheep in his mouth without letting it touch the ground, and runs with it much swifter than the shepherds who pursue him, so that nothing but the dogs can overtake, or oblige him to quit his prey.

He bites cruelly, and always with greater vehemence in proportion as he is less resisted; for he uses precautions with such animals as stand upon the defensive. He is cowardly, and never fights but when under a necessity of satisfying his hunger, or of making good his retreat. When he is wounded by a bullet he is heard to cry out, and yet, when surrounded by the peasants, and attacked by clubs, he never howls, but defends himself in silence, and dies as hard as he lived.

If he happens to be caught in a pit-fall, he is for some time so frightened that he may be killed without offering to resist, or taken alive without much difficulty. At that instant, one may clap a collar round his neck, muzzle him, and drag him along without his ever giving the least signs of anger and resentment. At all other times he has his senses in great perfection. He smells a carcase at the distance of more than a league; he also sees living animals a great way off, and follows them a long time on the scent. Whenever he leaves the wood he always takes care to go out against the wind. When just come to its extremity, he stops to examine, by his smell, on all sides, the emanations that may come either from his enemies or his prey, which he very nicely distinguishes. He prefers those animals which he kills himself to those which he finds dead; and yet he does not disdain these, though ever so much infected, when no better is to be had. He is particularly fond of human flesh, and, perhaps, if he was sufficiently powerful he would eat no other. Wolves have been seen following armies, and arriving in numbers on the field of battle, where they devour such dead bodies as are left upon the field, or out negligently interred. These, when once accustomed to human flesh, ever after seek particularly to attack mankind, choose to

fall upon the shepherd rather than his flock, and devour women, carry off their children, &c. These dreadful wolves are called *ware wolves*, that is to say, wolves of which we ought to be *aware*.

The colour of this animal differs according to the different climates in which he is bred, and often changes in the same country. Besides the common wolves which are found in France and Germany, there are others with thicker hair, inclined to yellow. In the northern climates, some are found quite black, and some white all over.



### THE FOX.

THIS animal has always been famous for his artifices; and the reputation he has thus acquired, he partly merits. What the wolf cannot accomplish by his superior strength, the fox accomplishes by his superior cunning. Without attempting to oppose either the shepherd, his dog, or his flock, he finds an easier way to subsist. Patient and prudent, he waits the opportunity for depredation, and varies his conduct as he perceives that circumstances vary; and though as indefatigable as the wolf, and more nimble than that animal, he yet does not trust to the swiftness of

his course, but contrives for himself an asylum, to which he retires in cases of necessity, and in which, sheltered from danger, he brings up his young.

The fox generally fixes his residence at the edge of a wood, and yet not far removed from some cottage, or some hamlet. He listens to the crowing of the cock, and the cackling of other domestic fowls: even at a considerable distance he scents them, and seizes his opportunity. If he be able to get into the yard, he begins by levelling all the poultry without remorse. This done, he carries off a part of the spoil, hides it at some convenient distance, and again returns to the charge. Taking off another fowl in the same manner, he hides that also, though not in the same place; and this he practises for several times together, till warned by the approach of day, or the noise of the family, he finally retires. The same arts are observed when he finds birds entangled in springs laid for them by the fowler; with whom the fox taking care to be beforehand, very expertly snatches the birds out of the snare, conceals them in different places, leaves them there sometimes for two or three days, and is never at a loss to recover his hidden treasure. He is equally alert in seizing young hares and rabbits, before they have strength enough to escape him; and when the old ones are wounded and fatigued, he is sure to come upon them, and to show them no mercy. In the same manner he finds out the nests of the partridge and the quail, and seizes the mother while sitting.

The fox is so voracious, that, when deficient of other food, he devours rats, mice, lizards, toads, and serpents. Insects and shell-fish he is likewise sometimes known to eat. In vain does the hedge-hog roll itself up into a ball to oppose him; this determined glutton seizes it till it is obliged to appear uncovered, and then devours it. The wasp and the wild bee are

attacked by him with equal success. Though at first they fly out upon their invader and actually oblige him to retire, yet this repulse is but for a few minutes, till he has rolled himself upon the ground, and thus crushed such as may have stuck to his skin ; he then returns to the charge, and at length, by dint of perseverance, obliges them to abandon their combs, which he greedily devours, both wax and honey.

The flesh of the fox is not so bad as the flesh of the wolf. Dogs, and even men eat it in autumn, especially if the animal has fed on grapes ; and, in winter, good furs are made of his skin. He sleeps so sound, that, however closely approached, there is no great danger of awaking him. When he only means to rest himself, he stretches out his hind legs, and remains flat upon his belly. In this posture he watches for the birds as they perch on the hedges ; who no sooner perceive him than they give each other notice of their approaching danger. The jackdaw and the magpie, in particular, often follow him along to the distance of some hundred paces, still towering beyond his reach, and with their cries, and notes of hostility, apprise other animals to beware.

### THE BADGER

Is a lazy, distrustful, solitary animal, that retires far from the approach of man, and digs a subterraneous residence, where it spends at least three-fourths of its existence, and never ventures forth but in search of food. It burrows in the ground with particular facility, as its body is rather of an oblong form, and its claws, those especially of the fore feet, are very long and compact. The hole which it thus forms often proceeds to a great depth below the surface of the earth, and the passage to it is always oblique and winding.

The fox, who is less expert at such excavations, often appropriates to his own convenience the labours of the badger.

Unable to compel him from his retreat by force, it often drives him from it by stratagem; often remains a fixed sentinel at the mouth of the passage, disturbs it, and, as an infallible expedient, it is said, emits its ordure. The badger gone, he immediately assumes possession of it, enlarges it, and every way accommodates it to his own purpose. Though forced to remove to another habitation, this animal does not, however, remove to another country. At a little distance from its old burrow, it forms a new one, from which it never stirs but at night. The dogs easily overtake it when it is at a distance from its hole, and then, using all its strength, all its powers of resistance, it throws itself upon its back, and defends itself with desperate resolution.

The young badgers are easily tamed; they will play with young dogs, and like them, will follow whom they know, and from whom they receive their food; but the old ones, in spite of every effort, still remain wild. They are neither mischievous nor voracious as the fox and the wolf are, yet they are carnivorous; and though raw meat is their favourite food, yet they will eat anything that comes in their way, as flesh, eggs, cheese, butter, bread, fish, fruit, nuts, roots, &c. They sleep the greatest part of their time, without, however, being subject, like the mountain rat or the dormouse, to a torpor during the winter; and thus it is, that, though they feed moderately, they yet are always fat.

Their hole they keep exceedingly clean, nor are they ever known to void their ordure in it. The male is rarely to be found with the female. In summer she brings forth, and her usual number at a birth

is three or four. These she feeds at first with her milk, and afterwards with such petty prey as she can surprise. She seizes young rabbits in the warren, robs birds of their young while yet in their nest, finds out where the wild bees have laid up their honey, where field mice, lizards, serpents, and grass-hoppers are to be met with, and carries all to her expecting brood, which she frequently brings forward to the mouth of her hole.

The hair of the badger is always filthy; between the anus and the tail there is an opening, which, though it has no communication with any interior part, and is hardly an inch deep, continually emits an oily liquid.



### THE OTTER

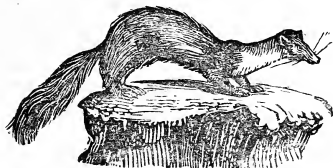
Is a voracious animal, which, more fond of fish than of flesh, is seldom found but at the sides of lakes and rivers. It swims with more facility than even the beaver. All the feet of the otter have membranes; and it can hardly walk faster than it swims.

Accurately considered, the otter cannot be pronounced an amphibious animal. We even find them drowned when they happen to be entangled in a net, and this evidently for want of having had time to destroy it and effect their escape. For want of fish,



frogs, water rats, or other nourishment, it will eat the young branches and the bark of aquatic trees; and in spring it will eat new grass. Of cold it is as little afraid as of moisture. It brings forth in the month of March. Three or four is the number generally produced at a birth.

The otter becomes industrious with age, at least enough so as to wage a successful war against the tribe of fishes, which, with respect to instinct and sentiment, are greatly inferior to other animals.



### THE MARTIN.

THE generality of naturalists have considered the martin and the pine-weasel as one and the same species. They are, however, different both in disposition and temperament. The pine-weasel shuns open countries, confines itself to the bosom of the forest, fixes its residence upon some tree, and is never found in great numbers but in cold climates; while the martin not only approaches human habitations, but even forms a residence for itself in old buildings, in hay lofts, in holes of walls, and while the species is generally diffused in great numbers over all the temperate climates, it is not to be met with in the regions of the north.

The countenance of the martin is very sharp; its eye is lively, its limbs are supple, its body is flexible,

and all its movements are quick. It rather leaps and bounds, than walks; and with great facility climbs walls, enters pigeon-houses and hen-houses, devours the eggs, the pigeons, and the hens, as on other occasions it does mice, rats, moles, and birds in their nests.

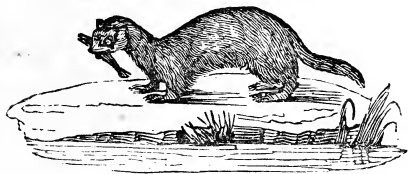
This animal, it is said, brings forth as often as the cat. The growth of the young ones is very quick; and hence it may be inferred, that it is an animal whose life does not exceed eight or ten years. Its smell, which is not absolutely disagreeable, is like that of counterfeit musk. Both the martin and the pine-weasel, as well as a number of other animals, have interior vesicles, which contain a strong-scented substance, like that which the civet furnishes.

### THE PINE-WEASEL.

ORIGINALLY a native of the north, is in a manner peculiar to that climate, where they are so numerous, that the quantity of furs produced from this animal alone, and carried into foreign countries, is actually astonishing. In temperate climates, on the contrary, it is rarely, and, in warm climates, never to be found. Some there are in Burgundy, and some in the forest of Fontainebleau; but in general they are as scarce in France as the martin is common. England having no extensive woods, is unacquainted with this animal.

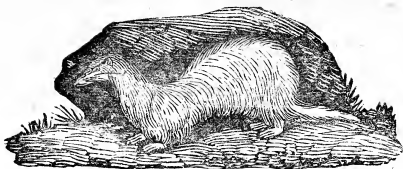
Alike averse to open countries, and to countries which are inhabited, it remains in the bosom of some forest, ranges below through the labyrinths of the thicket, or towers aloft on the branches of trees. It subsists by the chase, and destroys a prodigious quantity of birds, whose nests it searches for and invades, in order to devour eggs. Of the squirrel, the dormouse, &c., it always makes a prey, and it is also known to eat honey as well as the martin.

When the female is near her time, her custom is to climb up to the nest of some squirrel, to drive her from it, to enlarge it for her own purpose, and to bring forth her young in it. In the same manner she occupies the old nests of the owl and the buzzard, as also the hollow places of trees, from which she frequently dislodges the woodpecker and other birds.



### THE POLE-CAT

Is somewhat smaller than the martin; its tail is shorter, its snout sharper, and its hair thicker and more black. It has some white on the forehead, and about the nose and mouth. It differs likewise in its voice; the cry of the martin being rather sharp and loud, that of the pole-cat being deeper and more hollow. The pole-cat, however, does not at all resemble the martin in smell, which in the former, far from being in any degree agreeable, is to the last degree foetid. When heated, or enraged especially, it sends forth and diffuses a stench that is absolutely intolerable. The dogs will not eat its flesh; and even its skin, though good in itself, sells at an extremely low price, as it can never be entirely divested of its natural odour.



### THE FERRET.

It has been doubted by some authors, whether or not the ferret and the pole-cat were animals of two different species. Perhaps the resemblance there sometimes is in the colour of their hair first gave rise to this uncertainty. The pole-cat, nevertheless, a native of temperate climates, is an animal wild like the martin; whereas the ferret, originally an inhabitant of hot countries, can only live in our climate as a domestic animal. The ferret also, and not the pole-cat, is made choice of to drive the rabbits from their burrows, chiefly because it is more easily tamed. The ferret has a longer and thinner body, narrower head, and a sharper snout, than the pole-cat. It has not the same sagacity in providing for its subsistence; it cannot exist, at least in our regions, without the care of man, nor have such of the species as have been lost in the burrows of rabbits, been ever known to multiply in the country; but have, on the contrary, perished, to all appearance, by the severity of the winter.

This animal is by nature a mortal enemy to the rabbit. If even a dead one is presented to a young ferret which had never seen one before, it springs at it, and tears it with fury; if it be a living one, he seizes it by the neck and nose, and instantly begins

to suck its blood. When the ferret is let loose into the burrows of the rabbit, it is necessary to muzzle him, that he may not kill them at the bottom, but only oblige them to run out, and thereby fall into the net laid for them at the entry. If he is allowed to go unmuzzled, there is a risk of losing him, because, after having sucked the blood of the rabbit, he will fall asleep; and the smoke which is raised at the mouth of the burrow does not always prove a sufficient expedient for bringing him back, as there are more issues than one, and as one burrow generally communicates with others, in which the ferret is apt to be the more bewildered the more he is surrounded with the smoke.



### THE WEASEL.

THE common weasel is as frequent in temperate and in hot countries, as it is scarce in cold ones. Though of the same species, it is in many respects different from the ermine, which is a native of the north.

When a weasel enters a hen roost, it never meddles with the cocks or the old hens; it makes choice of the pullets, the young chickens, and these it kills with a single stroke on the head, and carries away one after another. The eggs it sucks with incredible avidity. In winter it generally resides in some granary or hay-loft; where the female continues, even in the spring, in order to bring forth her young among

the hay and straw. During this time the weasel makes war with the rats and mice with more success than the cat, since, following them into all their holes, it is next to an impossibility for them to escape. It also climbs up the pigeon-houses, to the nests of sparrows, &c., and commits great havock. In summer, it removes to some distance from the houses, always choosing the lower countries, about the mills and streams, hiding itself among the bushes, in order to catch the birds, and not unfrequently taking up its habitation in the hollow of an old willow. The female generally brings forth four or five. The young ones come forth with their eyes shut, but in a little time they attain a sufficiency of growth and strength to follow their mother to the chace. They attack adders, water-rats, moles, field-mice, &c.; and, traversing the meadows, devour quails and their eggs.

### THE ERMINE, OR STOAT.

The weasel with a black tail is called the ermine when it is white, and the stoat when it is red or yellowish. Though it is a less common animal than the weasel, yet there are numbers to be found in the old forests, and sometimes during the winter in the neighbourhood of woody grounds. It is always easy to distinguish it from the common weasel, because the tip of its tail is always of a deep black, while the edge of its ears, and the extremities of its feet are white.

## CHAPTER IV.

## CERTAIN SMALLER ANIMALS OF THE CARNIVOROUS CLASS.

The Squirrel—The Rat—The Mouse—The Water Rat—  
The Guinea Pig—The Hedge Hog—The Mole—The  
Dormouse—The Brown Rat.



## THE SQUIRREL

Is a beautiful little animal, which is only half wild, and which, by its gentleness, its docility, and even the innocence of its manners, might deserve to be exempted from the present class. It is neither properly a carnivorous nor an injurious animal, though it sometimes seizes on birds; its general food consisting of fruit, almonds, hazel-nuts, beech-mast, and acorns; it is neat, clean, alert, lively, and industrious; its eyes are full of fire, its countenance is sharp, its body is nervous, and its limbs are supple.

The squirrel may be said to be less a quadruped than almost any other four-footed animal. It gen-

erally holds itself almost upright, using its fore feet as hands for a conveyance to the mouth. Instead of hiding itself in the earth, it is continually in the air; it sometimes resembles the birds by its lightness and activity; like them it rests upon the branches of trees, leaping from one to the other, and in the highest of them builds its nest. It avoids the water still more than the earth; and it is even asserted of this animal, that when it is obliged to cross a river or stream, it uses the bark of a tree, or some such light woody substance, as a boat, while its tail supplies the place of sails and of a rudder. It gathers together a quantity of nuts during the summer, which it deposits in the hollow part of some old tree, and to these has recourse for provision in winter; and such is the agility of its body, that it will in an instant climb up a beech tree, let its bark be ever so smooth.

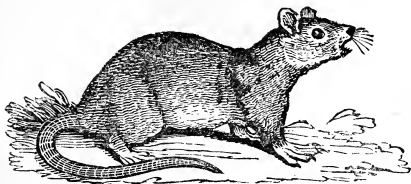
There are many species which approach to that of the squirrel, though there are few varieties in the species itself. Some there are of an ash-colour, and all the others are red. The small grey squirrel is of a different species, and remains always grey.

### THE RAT.

UNDER the general name of rat, several species of small animals have been comprised. The first of these, known in England by the name of the black rat, is carnivorous, and even if the expression is allowable, omnivorous. Hard substances, however, it prefers to soft ones; it devours wool, stuffs, and furniture of all sorts; eats through wood, makes hiding places in walls, thence issues for search of prey, and frequently returns with as much as it is able to drag along with it, forming, especially when it has young ones to provide for, a magazine of the whole. The females bring forth several times in the year, though



mostly in the summer season; and they generally produce five or six at a birth.



There are many varieties in this species. The white rat, like the white mouse, and all other animals which are entirely of that colour, has red eyes. The white species, with all its varieties, appears to belong to the temperate climates of our continent, and have been diffused in much greater abundance over hot countries than cold ones. Originally they had no rats in America; and those which are to be found there in such numbers at this day, are the produce of rats which accidentally obtained footing on the other side of the Atlantic with the first European settlers. Of these the increase was so great, that the rat was long considered as the pest of the colonies; where, indeed, it had hardly an enemy to oppose it but the large adder, which swallows it up alive. The European ships have likewise carried these animals to the East Indies, into all the islands of the Indian Archipelago, as well as into Africa, where they are found in great numbers. In the north, on the contrary, they have hardly multiplied beyond Sweden; and those which are called Norwegian and Lapland rats, are animals different from ours.

## THE WATER-RAT

Is a little animal, about the size of the black rat, but, in its nature and habits, rather resembling the otter than the rat. Like the otter, it frequents the fresh waters, and is generally found on the borders of rivers, rivulets, and ponds; like that creature, too, it seldom feeds but upon fish, though sometimes it eats frogs, water insects, and even roots and herbs. This animal is not web-footed; but, though every toe of its foot is separated, it swims with facility, keeps itself a long time above water, and thence carries off its prey, in order to eat it when got to land, either on the grass or in its hole.



## THE MOUSE

Is an animal smaller than the rat, as also more numerous, and more generally diffused. Its instinct, its temperament, its disposition is the same; nor does it materially differ from the rat, but by its weakness, and the habit which it contracts from that circumstance.

But for its immense fecundity, the species of the mouse could not subsist. Even in mouse traps they have been known to bring forth. They produce at all seasons, and several times in the year. Their usual number at a birth is five or six; and these, in

less than fifteen days, attain growth and strength sufficient to run about and shift for themselves. As in these respects they so soon attain perfection, so the duration of their life must be short; a circumstance which cannot but heighten our idea of their prodigious multiplication. Aristotle tells us, that having put a pregnant mouse into a vessel of corn, he soon found in it no less than one hundred and twenty mice, all sprung from one original.



### THE HEDGE-HOG

HAS the power of defending itself from an enemy, without combating him, and of annoying without attacking him. Possessed of little strength, and no agility, by which it might escape its foes, it has received from nature a prickly armour, with a facility of rolling itself up into a ball, and of presenting from every part of its body a poignant weapon of defence. Even from its fear this animal obtains another engine of security: the smell of its urine, which, when attacked, it generally sheds, being sufficient to disgust its enemy with the contest, and to keep him at a distance.

I do not believe that they climb up trees, as some naturalists have affirmed, or that they make use of their prickles to carry off the fruit; it is with their mouth they seize it; and though they are numerous in our forests, yet I have never seen one of them upon a tree. They always remain at the foot, in some

hollow space, or under moss. They remain in a state of inactivity all day; they only venture abroad at night, and seldom approach human habitations. They sleep during the winter; and therefore every thing that has been said of their laying up provisions for that season must be false.



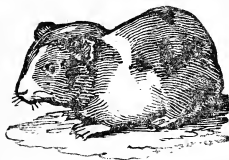
### THE MOLE,

WITHOUT being blind, has such small eyes, and these so concealed, that it can make but little use of the sense of seeing. In recompense, however, it enjoys the sense of hearing and feeling in an eminent degree. Its skin is soft as silk; and its little paws, which are furnished with five claws, are very different from those of other animals, and almost like the hands of a human being.

The mole shuts up the entry to its retreat, which it seldom deserts, unless forced to it by heavy rains in summer. It is fond of cultivated grounds, and is never to be found in those which are either muddy, hard, compact, or stony. It requires a soft soil, well supplied with esculent roots, and with insects and worms, of which indeed, its principal nourishment consists.

The hole in which they produce their young, is formed with singular skill, and deserves a particular description. The female begins by erecting the earth into a tolerable spacious apartment, which is supported within by partitions at proper distances, that pre-

vent the roof from falling. All round this she works, and beats the earth very firm, so as to make it capable of keeping out the rain, let it be ever so violent. As the hillock in which the apartment is thus formed is raised above the ground, the apartment itself is consequently above the level of the plain, and therefore less liable to accidental slight inundations. The place being thus fitted, she procures grass and dry leaves as a bed for her young. There they lie secure from wet, and she continues to make their retreat equally free from danger; for all round this hill of her own raising are holes running into the earth, which go off from the middle apartment, as rays from a centre, and extend about fifteen feet in every direction. These resemble so many walks, or chases, into which the animal makes her subterraneous excursions, and supplies her young with such roots or insects as she can provide; but they contribute still more to the general safety; for as the mole is very quick at hearing, the instant she perceives her little habitation attacked, she takes to her burrow, and unless the earth be dug away by several men at one time, she and her young are sure to make good a retreat.



### THE GUINEA PIG,

THOUGH originally a native of the warm climates of Brazil and Guinea, lives, however, and breeds in tem-

perate and even cold countries, provided it is properly taken care of. Its skin is of little or no value; and its flesh, though people may, and actually do eat it, is very indifferent food.

The growth of these animals is not entirely completed till the expiration of eight or nine months. The female never goes with young above three weeks; and she has been known to bring forth when only two months old. The first litter is not so numerous as the subsequent litters. It does not amount to more than four or five; the second amounts to five or six; and the rest to seven or eight, and even to ten or eleven. She does not suckle her young longer than twelve or fifteen days. Thus these animals produce at least every two months; and as those which are newly born produce in the same manner, their multiplication is astonishing. In one year a thousand might be obtained from a single couple, did they not frequently destroy each other, and perish from the cold and wet.

The guinea-pig feeds on all sorts of herbs, and especially on parsley, which it prefers even to bran, flour, or bread. Of apples and other fruits it is also exceedingly fond. Like the rabbit, it eats precipitately, little at a time, but very often. It whines somewhat like a young pig.

These animals are so delicate, that it is with difficulty they undergo the rigours of winter. When they feel the cold, they assemble together, press close to one another, and in this situation are frequently found dead.

### THE DORMOUSE.

Of all the rat species, the dormouse is the least ugly. Its eyes are sparkling, its tail is tufted, and its hair is rather fair than red. It never lives in houses, is

seldom to be found in gardens, but chiefly frequents the woods, where it finds a shelter in the hollow of some old tree.

The species is by no means numerous, yet they seem to be tolerably common in Italy, and to be not unknown even in the northern climates; but it does not appear to be an English animal; for Ray, who had seen it in Italy, observes that the small dormouse which is found in England, is not red upon the back, like the Italian, and that it probably belongs to another species.

The dormouse becomes torpid by the cold, and rolls itself up into a ball; it revives in mild weather, and hoards up nuts and other dry fruits for future sustenance. It forms its nest in trees, like the squirrel, though generally in a lower situation, among the branches of a nut tree, in a bush, &c. The nest is composed of herbs interwoven, is about six inches in diameter, has no aperture but at the top, and contains three or four young ones.

### THE BROWN RAT

Is both stronger and more mischievous than the black rat; it has a reddish skin, a long tail without hair, the back bone arched like that of the squirrel, the body much thicker, and whiskers like that of a cat. It is considerably within half a century since that species has been spread in the neighbourhood of Paris. They multiply, indeed, prodigiously, since it is well known that they generally produce twelve or fifteen, often sixteen, seventeen, eighteen, and even nineteen young ones at a time. The males are larger, stronger, and more mischievous than the females. Their bite is not only sharp but dangerous, and is immediately followed by a considerable swelling; and the wound, though small, is yet long in being closed,

They bring forth three times in a year, the dams previously preparing a bed for their young; and thus two individuals of this species produce at least three dozen in the space of twelve months.

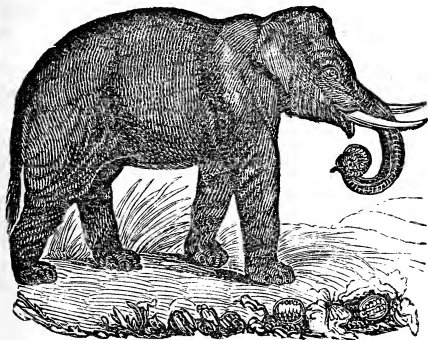
The brown rat in its nature, and some of its habits, bears a resemblance to the water-rat.—Though there is no place in which they will not fix their residence, they yet seem to delight in living near the water. When they find themselves pursued, and have the same opportunity of sheltering themselves in the water, or in a thorny thicket, they prefer the former, plunge into it without dread, and swim with amazing facility. This particularly happens when they cannot get back to their burrows; for they always dig holes for themselves in the earth, or else occupy those of the rabbit. They may also be taken, like that animal, by means of the ferret which follows them underground in the same manner as it does the rabbit, and seemingly with even more ardour.

These animals live principally upon fruit and corn, but are, notwithstanding, exceedingly carnivorous. They devour young rabbits, partridges, and other birds; and when they enter a hen-roost, they destroy, like the pole cat, more than they can eat. They do not become torpid in the winter, like the dormouse, but take advantage of every fine day to come out of their subterranean mansions.—Those which live in barns drive away the mice; and it has even been remarked that the black rats, as they are called, have been far less common since the brown rats became so numerous.



## CHAPTER V.

The Elephant—The Rhinoceros—The Camel and Dromedary—The Buffalo, the Urus, the Bison, and the Zebu.



## THE ELEPHANT.

THE human race excepted, the elephant is the most respectable of animals. In size he surpasses all other terrestrial creatures, and in understanding he is inferior only to man. Of all the brute creation, the elephant, the dog, the ape, and the beaver are most admirable for their sagacity; but the genius of the dog is only borrowed, being instructed by man in almost every thing he knows; the monkey has only the appearance of wisdom, and the beaver is only sensible with regard to itself and those of its species. The elephant is superior to either of these—he unites

all their most eminent qualities. The hand is the principal organ of the monkey's dexterity; the elephant with his trunk, which serves him instead of arms and hands, with which he can lift up, and seize the smallest, as well as the largest objects, carry them to his mouth, place them on his back, hold them, or throw them far off, has the same dexterity as the monkey, and at the same time the tractableness of the dog; he is like him susceptible of gratitude, and capable of a strong attachment; he uses himself to man without reluctance, and submits to him, not so much by force as by good treatment; he serves him with intelligence and fidelity; in fine, the elephant, like the beaver, loves the society of his equals, and makes them understand him.

Every thing in nature has his real price and relative value; to judge of both in the elephant, we must allow him at least the judgment of the beaver, the dexterity of the monkey, the sentiment of the dog, and, to add to these qualifications, the peculiar advantages of strength, size, and longevity. We must not forget his arms, or his defence, with which he can pierce through and conquer the lion. We must observe, that he shakes the ground at every step; that with his trunk he roots up trees; that with the strength of his body he makes a breach in a wall; that being terrible by his force, he is invincible by the resistance only of his enormous mass, and by the thickness of the leather which covers it; that he can carry on his back a tower armed in war, with a number of men; that he alone moves machines, and carries burthens which six horses cannot move. To this prodigious strength he joins courage, prudence, coolness, and an exact obedience; he preserves moderation even in his most violent passion; he is more constant than impetuous in love; in anger he does

not forget his friends, he never attacks any but those who have given him offence ; he remembers favours as long as injuries ; having no taste for flesh, and feeding chiefly on vegetables, he is not naturally an enemy to other animals ; he is beloved by them all, since all of them respect him, and have no cause to fear him. For these reasons men have had at all times a veneration for this great, this first of animals. The ancients considered the elephant a prodigy, a miracle of nature ; they have much exaggerated his natural faculties ; they attributed to him, without hesitation, not only intellectual qualities, but moral virtues.

In a wild state, the elephant is neither bloody nor ferocious ; his manners are social ; he seldom wanders alone ; he commonly walks in company ; the oldest leads the herd, the next in age drives them, and forms the rear ; the young and the weak are in the middle. The females carry their young, and hold them close with their trunks. They only observe this order, however, in perilous marches when they go to feed on cultivated lands ; they walk or travel with less precaution in forests and solitary places, but still keeping at such a moderate distance from each other as to be able to give mutual assistance, and seasonable warnings of threatened danger.

These animals are fond of the banks of rivers, deep valleys, shady places, and marshy grounds ; they cannot subsist a long while without water, and make it thick and muddy before they drink ; they often fill their trunks with it, either to convey it to their mouth, or only to cool their nose, and to amuse themselves in sprinkling it around them ; they cannot support cold, and suffer equally from excessive heat ; for to avoid the burning rays of the sun they penetrate into the thickest forests ; they also bathe often in the water ; the enormous size of their body is ra-

ther an advantage to them in swimming, and they do not swim so deep in the water as other animals; besides the length of their trunk, which they erect, and through which they breathe, takes away any fear they might have of being drowned.

Their common food is roots, herbs, leaves, and young branches; they also eat fruit and corn, but they have a dislike to flesh and fish. When one of them finds abundant pasture, he calls the others and invites them to come and feed with him. As they want a great quantity of fodder, they often change their place, and when they find cultivated lands they make a prodigious waste; their bodies being an enormous weight, they destroy ten times more with their feet than they consume for their food, which may be reckoned at the rate of one hundred and fifty pounds of grass daily.

The female elephant goes two years with young; when she is in that condition the male never copulates with her. They only bring forth a young one, which has teeth as soon as brought forth, he is then larger than a boar; yet his tusks are not visible, they appear soon after, and at six months old are some inches in length; at that age the elephant is larger than an ox, and the tusks continue to increase till he is advanced in years.

It is very easy to tame the elephant. As he is the strongest and most rational of animals, he is more serviceable than any of them; but he seems to feel his servile condition, for he never couples or generates in a domestic state.

There is, therefore, no domestic elephant but has been wild before, and the manner of taking, taming, and bringing them into submission, deserves particular attention. In the middle of forests, and in the vicinity of places which they frequent, a large space

is chosen, and encircled with pallisadoes; the strongest trees of the forest serve instead of stakes; a man may easily pass through this pallisado; there is another great opening, through which the elephant may go in, with a trap hanging over it, or a gate, which is shut behind him; to bring him to that inclosure, he must be enticed by a tame female, ready to take the male; and when her leader thinks she is near enough to be heard, he obliges her to indicate by her cries the condition she is in; the wild male answers immediately, and begins his march to join her; she repeats her call now and then, and arrives first to the first inclosure, where the male, following her track, enters through the same gate. As soon as he perceives himself shut up, his ardour vanishes, and when he discovers the hunters he becomes furious; they throw at him ropes with a running knot, to stop him; they fetter his legs and his trunk, they bring two or three tame elephants, led by dexterous men, and try to tie them with the wild elephant, and by dint of dexterity, strength, terror, and caresses, they succeed in taming him in a few days.

The species of the elephant is numerous, though they bring forth but one young one in two or three years. The shorter the life of animals is the more they multiply. In the elephant, the length of his life compensates the small number; and if it is true, as has been affirmed, that he lives two hundred years, and that he begets when he is one hundred and twenty years old, each couple brings forty young in that space of time; besides having nothing to fear from other animals, and little even from men, who take them with great difficulty, the species has not decreased, and is generally dispersed in all the southern parts of Africa and Asia.

In general, however, the elephants of Asia are of

a larger size, and superior in strength to those of Africa; in particular, those of Ceylon, which exceed in courage and sagacity all those of Asia; probably they owe these qualifications to their education, more improved in Ceylon than any where else. The elephants of the Indies easily carry burdens of more than a 1000lbs., weight upon their backs; with their trunks they break branches of trees, and with their tusks they root up trees.

The common colour of the elephant is ash-grey, or blackish. The white are extremely scarce; some have been seen at different times in the Indies, where also some are found of a reddish colour.

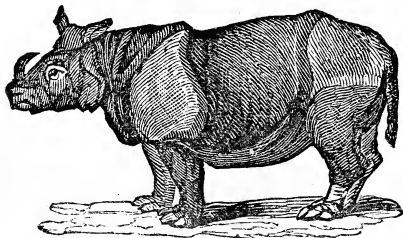
The ears of the elephant are very long, his tail is not longer than the ear; it is commonly near three feet in length; it is rather thin, sharp, and garnished at the extremity with a tuft of large, black, shining, and solid bristles, which are as large and strong as wire; and a man cannot break them with his hands, as they are elastic and pliant. This tuft of hair is an ornament which the Negro women are particularly fond of; and they attribute to it some particular virtue, according to their superstitious notions. An elephant's tail is sometimes sold for two or three slaves, and the Negroes often hazard their lives to cut and snatch it from the living animal.

The largest elephants of the Indies, and the eastern coast of Africa, are fourteen feet high; the smallest, which are found in Senegal, and in the other western parts of Africa, are not above ten or eleven feet; and those which have been brought young into Europe were not so high. That at the menagerie at Versailles, which came from Congo, was but seven feet and a half high in his seventeenth year. During thirteen years that he lived in France he did not grow above a foot; so that at the age of four, when he was sent, he was only six feet and a half high.

In order to give a complete idea of the nature and intelligence of this singular animal, we shall insert here some particulars communicated by the Marquis of Montmirail. The Indians make use of the elephant to carry artillery over the mountains; and it is then that he gives the greatest proofs of his intelligence. He acts in the following manner: When the oxen, yoked two and two, endeavour to draw up the mountain the piece of artillery, the elephant pushes the breech of the gun with his forehead; and at every effort that he makes he supports the carriage with his knee, which he places near the wheel; and it seems as if he understands what is said to him. When his leader employs him in some hard labour, he explains what is his work, and the reasons which ought to engage him to obey. If the elephant shows an aversion to comply, the *cornca*, so his leader is called, promises to give him arrack, or something he likes; then the animal agrees to every thing proposed; but it is dangerous to forfeit his word, as more than one *cornca* has been the victim of his deception. An instance of this happened in the Deckan, which deserves to be recorded; and however incredible it may appear, it is exactly true. An elephant had been revenged of his *cornca* by killing him. His wife, witness of the catastrophe, took her two children, and threw them at the feet of the animal, still furious, telling him, *Since thou hast killed my husband, take also my life, and that of my children.* The elephant stopped short, grew calm, and, as if he had been moved with regret and compassion, took with his trunk the largest of the two children, placed him on his neck, adopted him for his *cornca*, and would have no other.

I have observed several times (says Edward Terry) that the elephant does many things which are rather an indication of human reasoning, than a simple na-

tural instinct. He does whatever his master commands him. If he orders him to frighten any person, he advances towards him with the same fury as if he would tear him to pieces; and when he comes near him he stops short, without doing him any harm. If the master wishes to affront another, he speaks to the elephant, who takes with his trunk dirty water, and throws it at his face. The Mogul has elephants for the execution of criminals condemned to death. If their leader bids them to dispatch these wretches soon, they tear them to pieces in a moment with their feet: on the contrary, if he commands them to make these criminals languish, they break their bones one after another, and make them suffer torments as cruel as those of the wheel.



### THE RHINOCEROS.

AFTER the elephant, the rhinoceros is the most powerful of all quadrupeds. He is at least twelve feet in length from the extremity of the snout to the tail; six or seven feet in height; and the circumference of his body is very near equal to his length; he is there-



fore like the elephant in bulk, and if he appears much smaller, it is because his legs are much shorter in proportion to those of the elephant; but he differs widely from that sagacious animal in his natural faculties and his intelligence, having received from nature merely what she grants in common to all animals; deprived of all feeling in the skin, having no organ answering the purposes of hands, nor distinct for the sense of feeling, he has nothing instead of a trunk but a moveable lip, in which centres all his dexterity. He is superior to other animals only in strength, size, and the offensive weapon which he carries upon his nose, and which is peculiar to him. This weapon is a very hard horn, solid throughout, and placed more advantageously than the horns of ruminating animals; these only protect the superior parts of the head and neck, whilst the horn of the rhinoceros defends all the exterior parts of the snout, and preserves the muzzle, the mouth, and the face from insult; so that the tiger attacks more readily the elephant, in seizing his trunk, than the rhinoceros, which he cannot attack in front, without running the danger of being killed. He has the head larger in proportion than the elephant, but the eye still smaller, which he never opens entirely; the upper jaw projects above the lower; and the upper lip has a motion, and may be lengthened six or seven inches. This muscular and flexible lip is a sort of trunk, very incomplete, but which is equally calculated for strength and dexterity. His ears are always erect, and in form are like those of a hog, only they are larger in proportion to his body; they are the only hairy parts of it. The end of the tail is, like that of the elephant, furnished with a tuft of large bristles, very hard and very solid.

The rhinoceros which arrived in London in 1739,

had been sent from Bengal. Although he was young (being but two years old) the expenses of his food and his voyage amounted to near one thousand pounds sterling. He was fed with rice, sugar and hay. They gave him daily seven pounds of rice, mixed with three pounds of sugar, which they divided into three parts. He had also a great quantity of hay and green grass, to which he gave the preference. His drink was nothing but water, of which he drank a great quantity at one time.

The rhinoceros is, without being ferocious or carnivorous, or even very wild, nevertheless untameable. He is of the nature of a hog, blunt, and grunting, without intellect, without sentiment, and without tractableness. These animals are also, like the hog, very much inclined to wallow in the mire; they like damp and marshy places, and seldom leave the banks of rivers. They are found in Asia and Africa, in Bengal, Siam, Saos, in the Mogul dominions, in Sumatra, in Java, in Abyssinia, in Ethiopia, and about the Cape of Good Hope.

Without being useful, as the elephant, the rhinoceros is very hurtful by the prodigious devastation which he makes in the fields. The skin is the most valuable thing of this animal. His flesh is excellent, according to the taste of the Indians and Negroes. Kolbe says he has often eaten it with great pleasure. His skin makes the best and hardest leather in the world; and not only his horn, but all the other parts of his body, and even his blood, his urine, and his excrements, are esteemed as antidotes against poison, or a remedy against several diseases; probably, however, those virtues are imaginary.

The rhinoceros feeds upon herbs, thistles, prickles, shrubs, and he prefers this wild food to the verdant meadows; he is very fond of sugar-canes, and eats all sorts of corn.

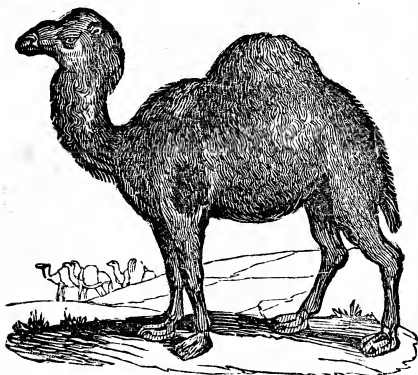
The rhinoceroses do not herd together, nor march in troops like the elephant; they are wilder and more solitary, and perhaps more difficult to be hunted and subdued; they never attack men unless provoked; but then they become furious, and are very formidable, the steel of Damascus, the scymitars of Japan, cannot make an incision in his skin; the darts and lances cannot pierce him through; his skin even resists the balls of a musket; those of lead become flat upon his leather, and the iron ingots cannot penetrate through it: the only places absolutely penetrable in this body armed with *acuirass*, are the belly, the eyes, and round the ears; so that huntsmen, instead of attacking this animal standing, follow him at a distance by his track, and wait to approach him at the time that he sleeps or rests himself.

The voice of the rhinoceros, when he is calm, resembles the grunting of a hog; and when he is angry, his sharp cries are heard at a great distance. Though he lives upon vegetables he does not ruminate; thus it is probable, that, like the elephant, he has but one stomach, and very large bowels, which supply the office of the paunch. His consumption, though very great, is not comparable to that of the elephant, and it appears by the thickness of his skin, that he loses less than the elephant by his perspiration.

### THE CAMEL AND DROMEDARY.

THESE two names do not include two different species, but only indicate two distinct breeds, subsisting from time immemorial, in the camel species. The principal, and, as may be said, the only perceptible character by which they differ, consists in the camel's bearing two bunches, or protuberances, and the dromedary only one. The latter is also much less, and not so strong as the camel; but both herd and copu-

late together; and the production from this cross breed is more vigorous, and of greater value than the others.



This mongrel issue from the dromedary and the camel forms a secondary breed, which also mix and multiply with the first; so that in this species, as well as in that of other domestic animals, there are to be found a great variety, according to the difference of the climate they are produced in. Aristotle has judiciously marked the two principal breeds; the first, which has two hunches, under the name of the *Bactrian camel*; and the second under that of the *Arabian camel*; the first were called *Turkman* and the others *Arabian Camels*. This division still subsists, with this difference only, that it appears, since the discovery of those parts of Africa and Asia, which

were unknown to the ancients, that the dromedary is, without comparison, more numerous and more universal than the camel; the last being seldom to be found in any other place than in Turkey, and some other parts of the Levant; while the dromedary, more common than any other beast of his size, is to be found in all the northern parts of Africa, in Egypt, in Persia, in South Tartary, and in all the northern parts of India.

The dromedary, therefore, occupies an immense tract of land, while the camel is confined to a small spot of ground; the first inhabits hot and parched regions; the second a more moist and temperate soil. The camel appears to be a native of Arabia, for it is not only the country where there is the greatest number, but it is also the best accommodated to their nature. Arabia is the driest country in the world, and the camel is the least thirsty of all other animals, and can pass seven days without any drink. The land is almost in every part dry and sandy; the feet of the camel are formed to travel in sand; while, on the contrary, he cannot support himself on slippery ground.

The Arabs regard the camel as a present from heaven, a sacred animal, without whose aid they could neither subsist, trade, nor travel. Its milk is their common nourishment; they likewise eat its flesh, especially that of the young ones, which they reckon very good. The hair of these animals, which is fine and soft, is renewed every year, and serves them to make stuffs for their clothing and their furniture. Blest with their camels, they not only want for nothing, but they even fear nothing. With them they can, in a single day, place a tract of desert of fifty miles between them and their enemies; and all the armies in the world would perish in the pursuit of a

troop of Arabs. Let any one figure to himself a country without verdure and without water, a burning sun, a sky always clear, plains covered with sand, and mountains still more parched, over which the eye extends, and the sight is lost, without being stopped by a single living object; a dead earth, *flayed*, if I may be allowed the expression, by the winds, which presents nothing but bones of dead bodies, flint scattered here and there, rocks standing upright or overthrown; a desert entirely naked, where the traveller never drew his breath under the friendly shade; where he has nothing to accompany him, and where nothing reminds him of living nature; an absolute void, a thousand times more frightful than that of the forest, whose verdure in some measure diminishes the horrors of solitude; an immensity which he attempts to overrun; for hunger, thirst, and burning heat press on him every weary moment that remains between despair and death.

In Turkey, Persia, Egypt, Arabia, Barbary. &c., they use no other carriage for their merchandise than camels, which is, of all their conveyances, the most ready and cheapest. Merchants, and other travellers, assemble themselves in caravans to avoid the insults and piracies of the Arabs. These caravans are often very numerous, and often composed of more camels than men. Every one of these camels is loaded according to his strength, and he is sensible of it himself, that when a heavier load than usual is put upon him, he refuses it by constantly remaining in his resting posture, till he is lightened of some of his burthen.

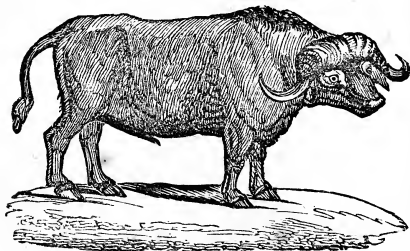
Large and strong camels generally carry a weight of 1000lbs. and even 1200lbs.; the smaller only 600 lbs, or 700lbs. In these commercial journeys they do not travel quickly; and as the route is often seven

or eight hundred miles, they regulate their stages ; they only walk, and go every day ten or twelve miles ; they are disburthened every evening, and are suffered to feed at liberty.

The facility with which they abstain so long from drinking is not pure habit, but rather an effect of their formation. Independent of the four stomachs which are commonly found in ruminating animals, the camel is possessed of a fifth bag, which serves him as a reservoir to retain the water. This fifth stomach is peculiar to the camel. It is of so vast a capacity as to contain a great quantity of liquor, where it remains without corruption, or without the other aliments being able to mix with it. When the animal is pressed with thirst, or has occasion to dilute the dry food, and to macerate it for rumination, he causes a part of this water to re-ascend into the stomach, and even to the throat, by a simple contraction of the muscles.

The camel is not only of greater value than the elephant, but perhaps not of less than the horse, the ass, and the ox, all united together. He alone carries as much as two mules ; he not only eats less, but likewise feeds on herbs as coarse as the ass. The female furnishes milk a longer time than the cow ; the flesh of young camels is good and wholesome, like veal ; their hair is finer and more sought after than the finest wool ; there is not a part of them, even to their excrements, from which some profit is not drawn ; sal ammoniac is made from their urine ; their dung, when dried and powdered, serves them for litter, as it does for horses, with which they often travel into countries, where neither straw nor hay is known. In fine, a kind of turf is also made of this dung, which burns freely, and gives a flame as clear, and almost as lively, as that of dried wood ; even this is another

great use, especially in deserts, where not a tree is to be seen, and where, from the deficiency of combustible matters, fire is almost as scarce as water.



### THE BUFFALO.

ALTHOUGH the buffalo is, at this present time, common in Greece, and tame in Italy, it was neither known by the Greeks nor Romans; for it never had a name in the language of these people. The word *buffalo* even indicates a strange origin, not to be derived from the Greek or Latin tongues. In effect, this animal is originally a native of the hottest countries of Africa and India, and was not transported and naturalized in Italy till towards the seventh century. It is true the ancients have spoken of an animal, as of different species from the ox, under the name of *bubalus*, and Aristotle has mentioned the wild ox of Pæonia, which he has called *bonasus*. Both the ancients and moderns, however, have multiplied the species unnecessarily; and, from attentive observation, I am clearly of opinion, that there are two species which are essentially different, namely, the ox and the buffalo.



We may observe throughout the different regions of the world, the breed of oxen differing from each other in all external appearances, according to the nature of the climate, or other circumstance; but the most remarkable difference is that which divides them into two classes, viz. the *aurochs*, or ox without a hunch on its back, and the *bison*, or hunched ox.



THE BISON.

Every part of South America is inhabited by oxen without hunches, which the Spaniards and other Europeans have successfully transported. These oxen are multiplied, and are only become smaller in these countries. In all the northern parts as far as Florida, Louisiana, and even as far as Mexico, the bisons, or hunched oxen, are to be found in great numbers. These bisons, which formerly inhabited the woods of Germany, Scotland, and other of our northern countries, have probably passed from one continent to the

other, and are become, like other animals, smaller in this new world.

Thus the wild and the tame ox, the European, the Asiatic, the American, and the African ox, the bonasus, the aurochs, the bison, and the zebu, are all animals of one and the same species, which, according to the climates, food, and different usage they have met with, have undergone all the variations we have before explained. The ox, as the most useful animal, is also the most universally dispersed. He appears ancient in every climate, tame among civilized nations, and wild in deserts or unpolished countries; he supports himself by his own strength, when in a state of nature, and has never lost the qualities which are useful to the service of man. The young wild calves, which are taken from their mothers in India and Africa, have, in a short time, become as tractable as those which are the issue of the tame kind; and this natural conformity is another striking proof of the identity of the species.

If it be asked which of the two kinds, the aurochs or the bison, claims the first place? it appears to me, that a satisfactory answer may be drawn from the facts we have just laid down. The hunch or wen of the bison is probably no other than an accidental character, which is defaced and lost in the mixture of the two kinds. The auroch, or ox without a hunch then, is the most powerful and predominant of the two; for if it was the contrary, the hunch, instead of disappearing, would extend and remain upon every one of this mixed breed.

The buffalo is of a more obstinate nature, and less tractable than the ox. He differs externally from the ox, chiefly in the colour of his hide, and this is easily perceived under the hair, with which he is but sparingly furnished; his body is likewise thicker and

shorter than that of the ox; his legs are longer, and proportionably much less; his horns not so round, black, and partly compressed, with a tuft of hair frizzled over his forehead; his hide is likewise thicker and harder than that of the ox; his flesh is black and hard, and not only disagreeable to the taste but to the smell; the milk of the female is not so good as that of the cow, nevertheless she yields a great quantity. In hot countries, almost all the cheese is made of buffalo's milk. The flesh of the young buffaloes, though killed during the suckling time, is not good. The hide alone is of more value than all the rest of the beast, whose tongue is the only part that is fit to eat. His hide is firm, light, and almost impenetrable.

The form and thickness of the buffalo alone are sufficient to indicate that he is a native of the hottest countries. The largest quadrupeds belong to the torrid zone, in the Old Continent; and the buffalo, for his size and thickness, ought to be classed with the elephant, the rhinoceros, and the hippopotamus. The camel is more elevated, but slenderer, and is also an inhabitant of the southern countries of Africa and Asia; nevertheless buffaloes live and multiply in Italy, in France, and in other temperate provinces. Those that are in the French king's menagerie have brought forth two or three times. The female has but one at a time, and goes about twelve months; which is another proof between this species and that of the cow, which only goes nine months. It appears also that those animals are gentler and less brutal in their native country, and the hotter the climate is, the more tractable is their nature. In Egypt they are more so than in Italy; and in India they are more so than in Egypt. Those in Italy have also more hair than those of Egypt, and those of Egypt more

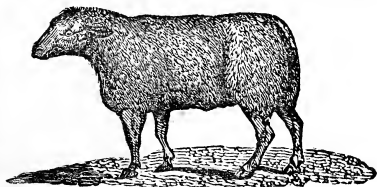
than those of India. Their coat is never entirely covered, because they are natives of hot countries; and, in general, large animals of this climate have either no hair at all, or else very little.

There are a great number of wild buffaloes in the countries of Africa and India, which are watered with many rivers, and furnished with large meadows. These wild buffaloes go in droves, and make a great havock in cultivated lands; but they never attack the human species, and will not run at them unless they are wounded, when they are very dangerous; for they make directly at their enemy, throw him down, and trample him to death under their feet. They are greatly terrified at the sight of fire, and are displeased at a red colour.

The Negroes in Guinea, and the Indians in Malabar, where the wild buffaloes are very numerous, often hunt them. They neither pursue them nor attack them openly, but, climbing up the trees, or, hiding themselves in the woods, they wait for them, and kill them.

## CHAPTER VI.

The Mufflon, and other Sheep—The Zebra—The Tapir,  
or Anta—The Hippopotamus—The Elk and Reindeer.



## THE MUFFLON, AND OTHER SHEEP.

THE breed of sheep, though perhaps originally all of the same species, yet is found to be very different in different countries. Our domestic sheep is only to met with in Europe and some of the most temperate provinces in Asia, and if transported into Guinea, loses its wool, and is covered with hair. It increases there but little, and its flesh has no longer the same taste. It cannot also subsist in cold countries; but even in those, and in Iceland, a breed of sheep is to be found, which have many horns, short tails, harsh and thick wool, under which, as in all animals of the north, is a second lining of a softer, finer, and thicker wool. In warm climates, some are covered with wool, others with hair, and a third kind with hair mixed with wool. The first kind of sheep of those countries is that called the Barbary or Arabian sheep, which entirely resembles the tame kind, excepting in the tail, which is very much loaded with fat, is often more than a foot broad, and weighs upwards of twen-

ty pounds. As for external appearance, this sheep has nothing remarkable but the tail, which he carries as if a pillow was fastened to his hinder parts. Among this kind of broad-tailed sheep, there are some whose tails are so long and heavy, that the shepherds are obliged to fasten a small board with wheels, in order to support them as they walk along. In the Levant, these sheep are clothed with a very fine wool. In the hotter countries, as Madagascar and the East Indies, they are clothed with hair. The superabundance of fat, which in our sheep fixes upon the reins, in these sheep descends under the vertebræ of the tail; the other parts of the body are less charged with it than in our fat sheep. This variety is to be attributed to the climate, the food, and the care of mankind: for these broad, or long-tailed sheep, are tame, like those of our country; and they even demand much more care and management. This breed is much more dispersed than ours; they are commonly met with in Turkey, Persia, Syria, Egypt, Barbary, Ethiopia, Madagascar, and even as far as the Cape of Good Hope.

In the islands of the Archipelago, and chiefly in the island of Candia, there is a breed of sheep, of which Bellon has given the figure and description, under the name of *Strepsichoros*. This sheep is of the make of our own common sheep; it is like that, clothed with wool, and only differs from it by the horns, which are straight, and in spiral furrows.

In short, in the hottest countries of Africa and India, there is a breed of large sheep, which has rough hair, short horns, hanging ears, and a kind of tuft under the tail. Leo Africanus, and Marmol, call it, *adamain*; and it is known to the naturalists by the names of the *Senegal ram*, *Guinea ram*, and the *Angola sheep*, &c. He is tame, like ours, and, like him,

subject to variety. These, though different in themselves, by particular characters, resemble each other so much in other respects, that we can scarcely doubt but they are of the same kind.

In considering, therefore, according to the difference of climate, the sheep which are purely tame, we find,

1. The sheep of the north, which have many horns, and whose wool is very rough and thick; and the sheep of the islands of Gothland, Muscovy, and many other parts of the north of Europe, whose wool is thick, and which appears to be of the same breed.

2. Our sheep, whose wool is very good and fine in the mild climates of Spain and Persia, but in hot countries change to a rough hair.

3. The broad-tailed sheep, whose wool is also very fine in temperate countries, such as Persia, Syria, and Egypt; but which in hot countries, changes into a hair more or less rough.

4. The sheep *strepsichotos*, or Cretan sheep, who resemble ours both in wool and make.

5. The *adamain*, or the great sheep of Senegal and India, which in no part is covered with wool, but on the contrary is clothed with hair, which is longer or shorter, rougher or smoother, according to the heat of the climate.



### THE ZEBRA

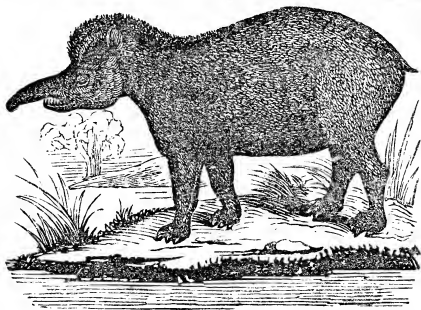
Is perhaps the handsomest and most elegantly clothed of all quadrupeds. He has the shape and graces of the horse, the swiftness of the stag, and a striped robe of black and white, alternately disposed with so much regularity and symmetry, that it seems as if nature had made use of the rule and compass to paint it. These alternate bands of black and white are so much the more singular as they are straight, parallel, and very exactly divided, like a striped stuff; and as they, in other parts, extend themselves not only over the head, the thighs, the legs, and even the ears and the tail, so that at a distance this animal appears to be surrounded with fillets, which some person had disposed, in a regular manner, over the body. In the females these bands are alternately black and white; in the male they are black and yellow, but always of a lively and brilliant mixture, upon a short, fine, and thick hair, the lustre of which still more increases the beauty of the colours. The zebra is, in



general, less than the horse and larger than the ass; and although it has often been compared to those two animals, it is neither a copy of one nor the other, and might rather be called their model, if all was not equally original in nature, and if every species had not an equal right to the creation.

The zebra is not the animal the ancients have indicated under the name of *onagra*. There exists in the Levant, the eastern parts of Asia, and in the northern parts of Africa, a beautiful race of asses, which, like the finest horses, are natives of Arabia. The zebra is also of a different climate from the *onagra*, and is only to be met with in the most eastern and the most southern part of Africa, from Ethiopia to the Cape of Good Hope and thence to Congo; it exists neither in Europe, Asia, nor America, nor even in all the northern parts of Africa; those which some travellers tell us they have seen at the Brazils, have been transported thither from Africa; those which others are recounted to have seen in Persia and in Turkey, have been brought from Ethiopia; and, in short, those which we have seen in Europe, are almost all from the Cape of Good Hope. This point of Africa is their true climate, their native country, and where the Dutch have employed all their care to subject them, and to render them tame, without being hitherto able to succeed. That which we have seen, and which has served for the subject of our description, was very wild when he arrived at the royal menagerie in France, and was never entirely tamed; he has, however, been broken for the saddle, but there are precautions necessary; two men held the bridle while a third was upon him. He was restive like a vicious horse, and obstinate as a mule; but perhaps the wild horse and *onagra* are not less intractable; and there is reason to believe that if the

zebra was accustomed to obedience from his earliest years, he would become as mild as the ass and the horse, and might be substituted in their room.



### THE TAPIR, OR ANTA,

Is the largest animal in America, where living nature seems to be lessened, or rather has not had time to arrive at its greatest dimensions. The animals also of South America, which alone properly and originally belong to this New Continent, are almost all without defence, without horns, and without tails.

The tapir is of the size of a small cow, or zebu, but without horns, and without a tail; the legs are short; the body crooked like that of the hog; wearing, in his youth, a coat like that of the stag, and afterwards uniform spots, of a dark brown colour; his head is thick and long, with a kind of trunk like that of the rhinoceros; he has ten incisive teeth, and ten grinders, in each jaw; a character which separates him entirely from the ox and other ruminating animals.

The tapir appears to be a dull and dark animal which never stirs out but in the night, and delights in the water, where he oftener lives than upon land. He is chiefly to be found in marshes, and seldom goes far from the borders of rivers and lakes. When he is threatened, pursued, or wounded, he plunges into the water, and remains there till he has got to a great distance before he re-appears. These customs, which he has in common with the hippopotamus, have made some naturalists imagine him to be of the same species; but he differs as much from him in nature, as he is distant from him in climate. To be assured of this, there needs no more than to compare the description we have now recited with that of the hippopotamus. Although the tapir inhabits the water, he does not feed upon fish; but lives upon plants and roots, and does not make use of what Nature has armed it with, against other animals. He is of a mild and timid nature, and flies from every attack or danger.

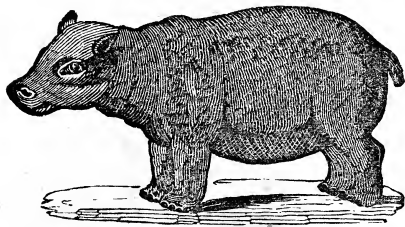
This animal is commonly found in Brazil, Paraguay, Guinea, and in all the extent of South America, from the extremity of Chilo to New Spain.

### THE HIPPOPOTAMUS.

ALTHOUGH this animal has been celebrated from the earliest ages, it was notwithstanding, but imperfectly known by the ancients. It was only towards the sixteenth century that we had some precise indications on the subject.

In comparing the descriptions which we have observed in different travellers, the hippopotamus appears to be an animal whose body is longer and thicker than that of the rhinoceros, but his fore legs are much shorter. His head is short, and thick in proportion to his body. He has no horns, neither on the nose, like the rhinoceros, nor on the head like

ruminating animals. His usual voice resembles the neighing of a horse, from which, however, he differs in every other respect; and this fact, we may presume, has been the sole reason for giving him the name of *hippopotamus*, or *river-horse*. The incisive teeth of the hippopotamus, and especially the two canine teeth of the lower jaw, are very long, strong, and of so hard a substance, that they strike fire with a piece of iron. These canine teeth of this animal are white, so clean and so hard, that they are preferable to ivory for making artificial teeth. The incisive teeth of the hippopotamus, especially those of the lower jaw, are very long, cylindrical, and furrowed. The canine teeth, which are also very long, are crooked, prismatic and sharp, like the tusks of a boar. The molars are square, or rather longer on one side than the other, nearly like the grinders of a man, and so thick that a single one weighs three pounds. The largest of the incisive, or the canine teeth, are twelve and even sixteen inches in length, and they sometimes weigh twelve or thirteen pounds each.



The male hippopotamus is about six feet nine inches long, from the extremity of the muzzle to the

beginning of the tail ; fifteen feet in circumference, and six feet and a half in height. His legs are about two feet ten inches long ; the length of the head three feet and a half, and eight feet and a half in circumference ; and the width of the mouth two feet four inches.

Thus powerfully armed, with a prodigious strength of body, he might render himself formidable to every animal ; but he is naturally gentle, and is otherwise so heavy and slow, that he cannot possibly catch any other quadruped in the chase. He swims more quickly than he runs, pursues the fish, and makes them his prey. He delights much in the water, and stays there as willingly as upon land ; and notwithstanding which he has no membranes between his toes, like the beaver ; and it is plain, that the great ease with which he swims is only owing to the great capacity of his body, which only makes bulk for bulk, and is nearly of an equal weight with the water. Besides, he remains a long time under water, and walks at the bottom as well as he does in the open air. When he quits it to graze upon land he eats sugar-canes, rushes, millet, rice, roots, &c., of which he consumes and destroys a great quantity, and does much injury to cultivated lands ; but as he is more timid upon earth than in the water, he is very easily driven away. His resource, when he finds himself in danger, is to plunge himself into the water and go a great distance before he re-appears. He commonly retreats from his pursuers, but if he is wounded he becomes irritated, and immediately facing about with great fury, rushes against the boats, seizes them with his teeth, often tears pieces out of them, and sometimes sinks them under water.

“ I have seen,” says a traveller, “ a hippopotamus open his mouth, fix one tooth on the side of the boat

and another to the second plank under the keel, that is four feet distant from each other, pierce the side through and through, and in this manner sink the boat to the bottom. I have seen another lying by the side of the sea-shore, upon which the waves had driven a shallop, heavily laden, which remained upon his back dry, and which was again washed back by another wave, without the animal appearing to have received the least injury. When the negroes go a fishing in their canoes and meet with a hippopotamus, they throw fish to him, and then he passes on without disturbing their fishery any more. He injures most when he can rest himself against the earth; but when he floats in the water he can only bite. Once when our shallop was near shore, I saw one of them get underneath it, lift it above water upon his back, and overset it with six men that were in it, but fortunately they received no hurt."

"We dare not," says another traveller, "irritate the hippopotamus in the water, since an adventure happened which was nearly proving to fatal three men. They were going in a small canoe, to kill one in a river where there was eight or ten feet of water. After they had discovered him walking at the bottom, according to his usual custom, they wounded him with a long lance, which so greatly enraged him that he rose immediately to the surface of the water, regarded them with a terrible look, opened his mouth, and at one bite took a great piece out of the side of the canoe, and had very nearly overturned it; but he re-plunged directly to the bottom of the water."

These animals are only numerous in some parts of the world; it even appears that the species is confined to particular climates, and seldom to be met with but in the rivers of Africa.



### THE ELK AND REIN-DEER.

ALTHOUGH the elk and the rein-deer are two animals of a different species, we have thought proper to unite them, because it is scarcely possible to write the history of the one without borrowing a great deal from the other.

The elk and the rein-deer are only found in the northern countries; the elk on this, and the rein-deer on the other side of the polar circle in Europe, and in Asia. We find them in America, in the highest latitudes, because the cold is greater there than in Europe. The rein-deer can bear the most excessive cold. He is found in Spitsbergen; he is common in Greenland, and in the most northern parts of Lapland: thus also, in the most northern parts of Asia, the elk does not approach so near the pole; he inhabits Norway, Sweden, Poland, Russia, and all the provinces of Siberia and Tartary, and the north of

China. We again find him by the name of *original*, and the rein-deer, under that of *caribou*, in Canada, and in all the northern parts of America.

We may form a sufficiently just idea of the elk and the rein-deer by comparing them with the stag. The elk is larger, stronger, and stands more erect upon his legs; his neck is shorter, his hair longer, and his antlers wider and heavier than those of the stag; the rein-deer is shorter and more squat; his legs are shorter and thicker, and his feet wider; the hair very thickly furnished, and his antlers much longer, and divided into a greater number of branches, with flat terminations; while those of the elk are only (if the expression is allowed), cut or broached at the edges; both have long hair under the neck, and both have short tails, and ears much longer than the stag; they do not leap or bound like the roe-bucks, but their pace is a kind of trot, so easy and quick, that they go over almost as much ground in the same time as the stags do, without being so much fatigued; for they can trot in this manner for a day or two.

In comparing the advantages which the Laplanders derive from the tame rein-deer, with those which we derive from our domestic animals, we shall see that this animal is worth two or three of them; he is used, as horses are, to draw sledges, and other carriages; he travels with great speed, and swiftness; he easily goes thirty miles a-day, and runs with as much certainty upon frozen snow as upon the mossy down. The female affords milk more substantial and more nourishing than that of the cow; the flesh is very good to eat; his coat makes an excellent fur, and his dressed hide becomes a very supple and durable leather. Thus the rein-deer alone affords all that we derive from the horse, the ox, and the sheep.

The antlers of the rein-deer are larger, more ex-



tended, and divided into a greater number of branches than those of the stag. His food, in the winter season, is a white moss which he finds under the snow, and which he ploughs up with his horns, or digs with his feet.

In summer he lives upon the buds and leaves of trees, rather than herbs, which his forward-spreading antlers will not allow him to brouse on with facility. These animals are mild; and they bring them up in herds, which turns out greatly to the profit of their keepers. The richest Laplanders have herds of four or five hundred head of rein-deer, and the poor have ten or twelve. If they attempt to change their climate they die in a short time.

The rein-deers have outwardly many things in common with the stags; and the formation of the interior part is the same. The rein-deer sheds his antlers every year like the stag, and, like him, is very good venison. The females, both of the young and the other species, go eight months with young, and produce but one at a birth. The young rein-deer follows his mother during the first two or three years, and does not attain his growth till about the age of four or five. It is at this age that they begin to dress and exercise them for labour.

The rein-deer is the only animal of this species the female of which has horns like the male; and the only one also which sheds his horns, and renews them again, notwithstanding his castration; for, in stags, fallow-deer, and roe-bucks, who have undergone this operation, the head of the animal remains always in the same state in which it was the moment it was castrated.

Another singularity, which we must not omit, and which is common to the rein-deer and the elk, is, that when these animals run, or quicken their pace,

their hoofs, at every step, make a crackling noise, as if all the joints of their legs were disjuncting. It is this noise, or perhaps the scent, which informs the wolves of their approach, who run out to meet and seize them; and, if the wolves are many in number, they very often conquer.

The elk and the rein-deer are both among the number of ruminating animals.

The ELK, in general, is a much larger and much stronger animal than the stag and the rein-deer.—His hair is so rough, and his hide so hard, that a musket ball cannot penetrate it. His legs are very firm, with so much motion and strength, especially in the fore-feet, that he can kill a man with one single stroke of his foot; nevertheless he is hunted nearly as we hunt the stag, that is, with men and dogs. It is affirmed that when he is touched with the lance, or pursued, it happens that he often falls down all at once, without either being pulled down or wounded. From this circumstance some have presumed he was subject to the epilepsy; and on this presumption, which is not well founded, since fear alone would be able to produce the same effect, this absurd consequence has been drawn, that his hoof is a remedy for the epilepsy, and even preserves persons from it.

## CHAPTER VII.

The Ibex, the Chamois, and other Goats—The Saiga—The Gazelle, or Antelope, and its varieties—The Bubalus, or Stag-like Antelope—The Condoma, or Striped Antelope—The Guib, or Harnessed Antelope—The Grimm—The Gnu—The Musk Animal.



THE IBEX.

THE IBEX and the chamois, one of which I look upon as the male, and the other as the female stock of the goat species, are only found, like the mufion, which is the source of the sheep species, in deserts, and upon the most craggy places of the highest mountains; the Alps, the Pyrenees, the mountains of Greece, and those of the islands of the Archipelago, are almost the only places where the ibex and the chamois are to be found. But, although both these animals dislike heat, and only inhabit the regions of snow and ice, yet they have also an aversion to excessive cold. In the summer they chose the north of the mountains; in winter they descend into the valleys; neither the one nor the other can support themselves on their legs upon the ice, when it is

smooth, but if there be the least inequalities on its surface, they bound along with security.

Mr. Perond, surveyor of the chrystal mines in the Alps, having brought over a living chamois, has given us the following information on the natural habits of this animal :—"The chamois is a wild animal, but easily tamed and very docile. It is about the size of a domestic goat, and resembles one in many respects. It is most agreeably lively, and active beyond expression. Its hair is short, like that of the doe; in spring it is of an ash colour, and in winter of a blackish brown. The large males keep themselves apart from the rest, except in their rutting time. The time of their coupling is from the beginning of October to the end of November; and they bring forth in March and April. The young follows the dam for about five months, and sometimes longer, if the hunters or the wolves do not separate them. It is asserted that they live between twenty and thirty years. The flesh of the chamois is good to eat; and some of the fattest afford ten or twelve pounds of suet, which far surpasses that of the goat in solidity and goodness."

The chamois feeds upon the best herbage, and chooses the most delicate parts of plants, flowers, and the most tender buds. It is not less delicate with regard to several aromatic herbs, which grow upon the sides of the Alps. It drinks but very little, while it feeds upon the succulent herbage, and ruminates like the goat, in the intervals of feeding. Its head is crowned with two small horns, of about half a foot long, of a beautiful black, and rising from the forehead, almost betwixt the eyes. These horns are often made use of for the heads of canes. The hides of these animals are very strong and supple, and good warm waistcoats and gloves are made of them.

The hunting of the chamois is very laborious and extremely difficult. The most usual way of taking them is by hiding behind some of the clefts of the rocks, and shooting them. The sportsman is obliged to take great precaution in this business, and to creep for a vast way upon his belly, observing at the same time to keep the wind in his face, for, should the wind prove in favour of the animal, it will smell its enemy for more than half a mile distance. When he is got within a proper distance, and properly secured from sight, he only advances his head and arms, with the piece from his hiding place, and fires among them; others hunt this animal, as they do the stag, by placing proper persons at all the passages of the place or valley, and then sending in others to rouse the game.

### THE SAIGA.

THERE is a sort of wild goat, found in Hungary and Tartary, and in South Siberai, which the Russians call *seigak*, or *saiga*. It bears a resemblance to the domestic goat in the shape of its body, and in its hair; but, by the shape of the horns and the defect of the beard, it approaches nearer the gazelle, and appears to be a mixture of these two animals.

The saiga, by its natural habits, resembles more the gazelle than the ibex and chamois; for it does not delight in mountainous countries, but lives upon the hills and on the plains.

## THE GAZELLE, OR ANTELOPE.



THERE have been thirteen species, or at least thirteen very distinct varieties, noted of these animals. In this uncertainty in knowing whether they are only varieties, or, in fact, really different species, we have thought proper to put them all together, assigning to each of them a particular name.

The first is the common GAZELLE, found in Syria, Mesopotamia, and in all the other provinces of the Levant, as well as in Barbary, and in all the northern parts of Africa. The horns of this animal are about a foot long, entirely annulated at the base, which lessen into half rings towards the extremity. These rings mark the number of years of their growth, which is commonly about twelve or thirteen. The gazelles in general, and this tribe in particular, greatly resemble the roebuck, in the proportions of the body, its natural functions, its swiftness, and the brightness and beauty of its eyes. Accurately considered, however, the gazelle seems to be of a middle nature, between the roe-buck and the goat; but when we consider that the roe-buck is an animal which is

to be found in both continents, and that the goats on the contrary, as well as the gazelles, do not exist in the New World, we shall easily perceive that these two species, the goat and the gazelle, are more nearly related to each other than the roe-buck.

The second gazelle is found in Senegal, and is called the KEVEL. It is something less than the former, and nearly of the size of a roe-buck; it differs also in its eyes, which are much larger; and its horns, instead of being round, are flattened on the sides, as well in the male as the female. In other respects, the kevel entirely resembles the gazelle.

The third animal is called the CORIN, the name it bears in Senegal. It greatly resembles the gazelle and the kevel, but is still less than either; its horns also are much smaller and smoother than those of the other two.

In the royal cabinet of France, there are skins of these three different gazelles; besides which is a horn which bears a great resemblance to those of the gazelle and kevel, and only differs from them in being much thicker. Its thickness and length seem to indicate a much larger animal than the common gazelle; and it appears to us to belong to a gazelle which the Turks call TZERAN, and the Persians ATUR.

To the fourth species or tribe of gazelles, must be added two other animals, which resemble them in many things. The first is called KOB<sup>a</sup>, at Senegal, where the French have styled it the *great brown cow*. The second, which we call KOB, is also an animal of Senegal, which the French have denominated the *small brown cow*. The horns of the kob greatly resemble those of the gazelle and kevel, but the shape of the head is much different; the muzzle is much longer, and there are no pita or depressions under the eyes.

The seventh animal is a gazelle which is found in the Levant, but more commonly in Egypt and Arabia. It is called **ALGAZELLE**; it is shaped much like the other gazelles, and is nearly the size of a deer; but its horns are long, small, and but little rounded till towards the extremity, when they turn short with a sharp flexure; they are about three feet in length, while those of the gazelle are commonly but one foot, those of the kevel fourteen and fifteen inches, and those of the corin, (which resemble this the most) only six or seven inches.

The eighth animal is the **PASAN**, vulgarly called the *bezoar gazelle*. It is of the size of our domestic he-goat, and it has the air, shape, and agility of the stag. In most respects the algazelle and the pasan appear to us to have a great affinity. They are natives of the same climate, and are found in the Levant, in Egypt, in Barbary, in Arabia, and in Persia.

The ninth gazelle is called **NANGUER**, at Senegal. It is three feet and a half long, two feet and a half high; it is of the colour of the roe-buck, fallow upon the upper part of the body, white under the belly and upon the hinder parts, with a spot of the same colour on the neck. Its horns are prominent, but what is very particular in them is, that near the points they are crooked forwards, nearly as those of the chamois are bent backwards. These nanguers are very beautiful animals, and very easy to tame.

The tenth gazelle is so well known to the English that they have given it the name of the **ANTELOPE**. It is very common in Barbary and in Mauritania. This animal is of the size of a roe-buck, and greatly resembles the common gazelle and the kevel, yet differs from them in many particulars, so as to be looked upon as an animal of a different species. The most



particular mark to distinguish this antelope is the double flexure of the horns, very uniform and remarkable, so that they make a very tolerable representation of an antique lyre.

In reviewing all the animals of this class, we find there are about twelve species, or distinct varieties, in the gazelles; and, after having carefully compared them, we suppose, first, that the common gazelle, the kevel, and the corin, are only three varieties of one species; secondly, that the tzerau, the koba, and the kob, are all three varieties of another species; thirdly, that the algazelle and the passan are only two varieties of the same species, and we imagine that the name Bezoar gazelle, which has been given to the pasan, is no distinctive character, for we think ourselves able to prove that the oriental bezoar does not come from the pasan alone, but from all the gazelles and goats which live in the mountains of Asia; fourthly, it appears that the nanguers, whose horns are crooked forwards, and which, together, compose two or three particular varieties, have been indicated by the ancients under the name of the *dama*; and fifthly, that the antelopes, which are about three or four in number, and which differ from all others by the double flexure of their horns, have also been known to the ancients by the names of *strepischoros* and of *addax*.

The bezoar stone is the production not only of gazelles, but of wild and domestic goats, and even sheep. Probably the formation of this stone depends more on the temperature of the climate, and the quality of the food, than on the nature or species of the animal. Some authors have asserted that the true occidental bezoar, i. e. that which possesses most virtue, is the production of monkeys, and not of gazelles, goats, or sheep. But this opinion is not founded on a proper basis; for we have seen many of these

concretions, to which the name of monkey bezoar has been given, quite different from the oriental bezoar, which is certainly produced by a ruminating animal, and which is easily distinguishable from all other bezoars, by its shape, substance, and colour, which is generally of an olive brown without and within; while the occidental bezoar is of a pale yellow; the substance of the first is also softer and finer; that of the last harder and drier. The oriental bezoar has been prodigiously in vogue, and a great consumption has been made of it in the last century; and since it has been made use of in Europe and in Asia, for all cases in which our present physicians give cordial medicines and other antidotes, may we not presume, by the great quantities which formerly have been, and by what at present is consumed, that this stone is produced not from a single species or animal, but from many; and that it is equally the production of gazelles, goats, and sheep, which cannot produce it but in certain climates of the Levant and Indies?

### THE BUBALUS, OR STAG-LIKE ANTELOPE,

RESEMBLES the stag, the gazelle, and the ox, in many very remarkable respects; its head, however, is much longer than the gazelle's, and even than the stag's; and it resembles the ox by the length of the muzzle, and the disposition of the bones of the head.

The hair of the bubalus is like that of the elk, fine towards the root, thick in the middle and extremity. This character is peculiar to these two animals; for the hair of almost every quadruped is thicker at the root than at the middle and the point. The hair is nearly of the same colour as the elk's, though shorter and softer, and these alone are the resemblances between the bubalus and elk.

The bubalus is common in Barbary, and in all the northern parts of Africa. It is nearly of the same nature as the antelope, and has, like that, a black hide, and flesh which makes very good food.

### THE CONDOMA, OR STRIPED ANTELOPE.

THE Marquis de Marigny had, in his cabinet, the head of an animal, which, at first sight, I supposed to have belonged to a great bubalus. It is like those of our largest stags; but the horns, instead of being solid like those of the stag, are large and yellow, with a ridge like those of the goat kind, and with varied flexures like those of the antelope.

In looking over the works of travellers, for those marks which might have an affinity with the remarkable size of the horns of this animal, we can find none which have a nearer relation to it than those of the animal indicated by Kolbe, by the name of the *wild goat* of the Cape of Good Hope. "This goat," he says, "is about the size of a large stag: its head is very handsome, ornamented with two crooked and pointed horns, about three feet asunder. Along the back there runs a white list, which ends at the insertion of the tail; another of the same colour crosses this at the bottom of the neck, which it entirely surrounds. There are two more running round the body, one behind the fore legs, and one parallel before the others. The belly is white; the rest of the body is of a greyish colour."

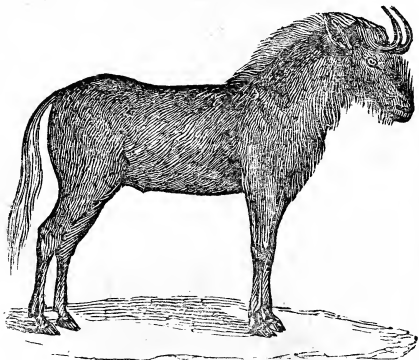
### THE GUIB, OR HARNESSSED ANTELOPE,

Is common in Senegal. It resembles the nanguer by the size and shape of its body, by the fineness of its legs, the shape of its head and muzzle, by the eyes, ears, and length of the tail, and by the defect of a beard. It is remarkable for white lists on a brown

ground, which are dispersed along the animal's body as if it were covered with a harness. They are found in numerous herds in the plains of Pador.

### THE GRIMM.

THIS animal is only known to naturalists by the name of the *wild goat of Grimmus*. There are two characters which are sufficient to distinguish it. The first is a very deep cavity under each eye; the second is a tuft of hair standing upright on the top of the head. It resembles both the goat and the gazelle in the shape of its body, and in the longitudinal streaks on the horns. It is a native of Guinea.



### THE GNU.

THE genus of antelope is almost infinitely extended, and probably embraces some animals not yet described. To this genus may perhaps be referred that singular animal which the Hottentots from its

voice distinguish by the name of *gnu*. It is described by travellers as resembling in form the horse, the ox, and the stag. It is about the size of a small horse; the colour of the body is dark brown. Like the horse it is adorned with a mane, which is stiff and erect. Its head resembles that of the ox species. Besides the mane, it has also on the chin and breast a shaggy, stiff black hair, while the mane and tail are grey. It is a native of the southern parts of Africa



### THE MUSK ANIMAL.

To finish our history of goats and other animals of this genus, there is one remaining to be described, which is as famous as it is unknown. The animal we mean is that which produces the musk, which all modern naturalists, and the greatest part of travellers through Asia, have spoken of, some by the name of the stag, roe-buck, and musk-goat; it seems indeed to be of an ambiguous nature, participating of all the above animals, although at the same time we can assert, that its species is different from all others. It is about the size of a small roebuck or gazelle; but it is without horns. It has two great canine teeth in

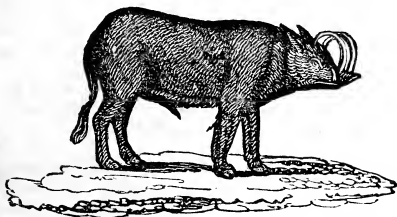
the upper jaw ; but what distinguishes it from all other animals is a kind of bag, about two or three inches in diameter, which grows near the navel, and into which a liquor filtrates which differs from the civet's by its smell and consistence.

The bladder or bag which contains the musk is about three inches long, two broad, and stands out from the belly about an inch and a half. The animal has twenty-six teeth. There is also a tusk, or canine tooth, on each side of the upper jaw, which terminates in the form of a hook. It appears farther, that the hair of this animal is long and rough, the muzzle pointed, and the tusks somewhat like those of a hog.

In respect to the matter of musk itself, its pure substance is perhaps as little known as the nature of the animal which produces it. All travellers agree that the musk is always mixed and adulterated with blood, or some other drugs, by those who sell it. The purest musk, and that which is the most sought after, is that which the animal deposits upon trees and stones, against which it rubs itself when the quantity renders it uneasy. The musk which is brought over in the bag, is seldom so good, because it is not yet ripe, or because it is only in their rutting season that it acquires all its strength and all its smell ; and it is at this time the animal tries to disburthen itself of this pure matter, which then causes such violent itching and irritation. The smallest particle of musk is sufficient to perfume a considerable space ; and the perfume is so permanent, that, at the expiration of several years, it does not seem to have lost much of its power.

## CHAPTER VIII.

The Babiroussa, or Indian Hog—The Porcupine—The Urson—The Cameleopard—The Hamster.



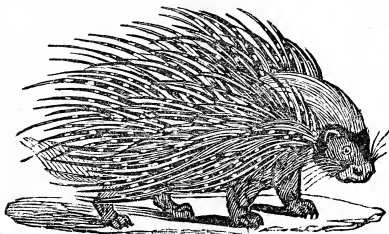
## THE BABIROUSSA, OR INDIAN HOG.

ALL naturalists have regarded this animal as a kind of hog, though it has neither the head, shape, bristles, nor tail of a hog. Its legs are longer, and its muzzle shorter. It is covered with soft and short hair, like wool, and its tail is terminated by a tuft of the same; but the most remarkable character, and what distinguishes it from all other animals, are four enormous tusks, or canine teeth, the two shortest of which shoot out of the lower jaw, like those of a boar, the two others which come from the upper jaw, pierce the cheeks, or rather the upper part of the lips, and rise crooked almost to the eyes. These tusks are of a very beautiful ivory, much smoother and finer, but not so hard as that of the elephant.

Although these animals are wild and ferocious as the boar, they are tamed with great ease; but their flesh, which is very good food, putrefies in a short

time. As their hair is fine, and their skin delicate, it is soon penetrated by the teeth of the dogs, who hunt them in preference to wild boars. When they are pursued for a long time, they make towards the sea, and, swimming with great dexterity, very often escape their pursuit.

The babiroussa feeds upon grass and leaves of trees. It is found not only in the island of Boura, or Boera, near Amboyna, but also in many parts of southern Asia and Africa; as at Estrilla, Senegal, Madagascar, &c.



### THE PORCUPINE.

THE name of this animal leads us into an error, and induces many to imagine, that it is only a hog, covered with quills, when, in fact it only resembles that animal by its grunting. In every other respect it differs from the hog as much as any other animal, as well in outward appearance, as in the interior conformation. Instead of a long head and ears, armed with tusks, and terminated with a snout; instead of a cloven foot, furnished with hoofs, like the hog, the porcupine has a short head, like that of the beaver,



with two large incisive teeth in the fore part of each jaw; no tusks or canine teeth. Instead of a large stomach, with an appendage in form of a caul, the porcupine has only a single stomach, with the large cœtum gut; the parts of generation are not apparent externally, as in the male hog; its testes, and the other parts of generation, are likewise concealed in the body. By all these marks, as well as by its short tail, its long whiskers, and its divided lip, it partakes more of the hare, and beaver kind, than that of the hog.

The porcupine, although a native of the hottest climates of Africa and India, lives and multiplies in colder countries, such as Spain, Persia, and Italy. Agricola says that the species were not transported into Europe before the last century. They are found in Spain, but more commonly in Italy, especially on the Appenine mountains, and in the environs of Rome.

The porcupine, in its domestic state, feeds on fruits, chesnuts, and also crumbs of bread; in its wild state, it lives upon roots and wild grain; when it can enter a garden it makes great havock, eating the herbs, roots, fruit, &c.

When the form, substance, and organization of the prickles of the porcupine are considered, they are found to be true quills, to which only feathers are wanting to make them resemble those of birds. They strike together with a noise as the animal walks, and it easily erects them in the same manner as the peacock spreads the feathers of his tail.

### THE URSON, OR CANADA PORCUPINE.

THIS animal, placed by nature in the desert part of North America, exists independent of, and far distant from man. The urson might be called the *spiny*

*beaver*, it being of the same size, the same country, and the same form of body; it has, like that, two long, strong, and sharp incisive teeth at the end of each jaw; its prickles are short, and almost covered with hair; for the *urson*, like the *beaver*, has a double coat: the first consists of long and soft hair, and the second of a down, or felt, which is still softer or smoother. In the young *ursons*, the prickles are proportionably larger, more apparent, and the hair shorter and scarcer than in the adults.



### THE GIRAFFE, OR CAMELEOPARD.

Is one of the tallest, most beautiful, and most harmless animals in nature. The species is not very numerous, and has always been confined to the de-

serts of Ethiopia, and some other provinces of Africa and India. Oppian describes it in the following manner :—

“The cameleopard,” says he, “has some resemblance to the camel: its head and ears are small, its feet broad, and its legs long; but the height of the last is very unequal, the forelegs being much longer than the hinder, which are very short, so that, when the animal appears standing and at rest, it has somewhat the appearance of a dog sitting. There are two prominences upon the head, just between the ears, that resemble two small and straight horns. Its mouth is like the stag’s; its teeth small and white; its eyes full of fire; its tail short, with black hair at the end.”

Gillius’ description is still better :—“I have seen,” says he, “three cameleopards at Cairo. On their heads are two horns, six inches long; and in the middle of their forehead a tubercle rises to about the height of two inches, which appears like a third horn. This animal is about sixteen feet high, when he holds his head erect. Its neck alone is seven feet; and it is twenty feet long from the tip of the nose to the end of the tail. Its fore and hind legs are nearly of an equal height; but the thighs before are so long in comparison to those behind, that its back seems to slope like the roof of a house. Its whole body is sprinkled with large brown spots, which are nearly of the same form. Its feet are cloven like that of the ox.”

The cameleopard is a very different species from every other animal; but, if we referred it to any, it would be the camel. It is among the number of ruminating animals, and, like them, is deficient of the incisive teeth in its upper jaw.

## THE HAMSTER, OR GERMAN MARMOT

Is one of the most famous and most pernicious rats that exist. It resembles more the water-rat than any other animal. These animals live under the earth, and seem to be animated with the same instinct as the short-tailed field mouse; they have nearly the same habits, and particularly that of collecting corn, and making great magazines in their holes.

These animals store their magazines with dry clover, corn, and other grain; beans and peas they likewise provide themselves with; all these they are careful to separate from the husk, which, with every matter they do not make use of, they carry out of their habitation.

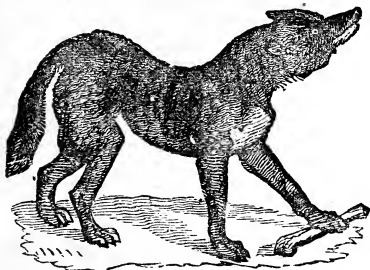
The hamster begins to burrow at the age of six weeks or two months; it never copulates, however, in the first year of its growth.

The polecat is a great enemy to the hamsters, which he destroys in great numbers; he not only pursues them on land, but follows them into their burrows, and feeds on them there.

The back of the hamster is commonly brown, and the belly black; however there are some of a grey colour, and this difference may proceed from their age. Besides these, there are some often met with which are entirely black.

## CHAPTER IX.

The Jackal and Adil—The Glutton—The Sable—The Seal.



## THE JACKAL AND ADIL.

WE are not certain that these two names denote two animals of different species. We only know that the jackal is a larger animal, which is more ferocious and difficult to be tamed than the adil.

By the writings of travellers, it appears that there are both great and small jackals, as well in America as in Silesia, Russia, and in every part of Asia, which we call the Levant, where this species is very numerous, troublesome, and hurtful. They are generally about the size of our foxes, but their legs are shorter; they are remarkable for the colour of their hair, which is of a glossy and bright yellow. This is the reason why many authors have called the jackal the *golden wolf*.

As the species of the wolf approaches that of the dog, so the jackal finds a place between them both.

The jackal or adil, as Belin says, is a *beast between the wolf and the dog*. To the ferocity of the wolf it joins, in fact, a little of the familiarity of the dog. Its voice is a kind of howl, mixed with barking and groaning; it is more voracious than the wolf; it never stirs out in search of prey, but in packs of from twenty to forty, when they attack every kind of beast or birds, almost in the presence of the human species; they abruptly enter stables and other places, without any sign of fear. When they cannot meet with any live prey, they dig up the dead carcasses of men and animals. The natives bury their dead very deep in the earth, for it is not a little trouble that discourages them. Numbers of them work together, and accompany their labour with a doleful cry; and when they are once accustomed to feed on dead bodies, they run from country to country, follow armies, and keep close to the caravans. This animal may be styled the crow of quadrupeds, for they will eat the most putrid or infectious flesh; their appetite is so constant and so vehement, that the driest leather is savoury to them; and skin, flesh, fat, excrement, or the most putrefied animal, is alike to their taste.

### THE GLUTTON.

THE body of the glutton is thick, and its legs short. It is nearly of the size of a ram, but as thick again; its head is short; its eyes small, its teeth very strong, its tail rather short, and covered with hairs to its extremity; it is black along the back, and of a reddish brown on the flanks; its fur is exceedingly beautiful, and much valued. It is common in Lapland, and all the neighbouring countries of the Northern Sea, as well in Europe as in Asia. It is called *Carcajou* in Canada, and the northernmost parts of America.



The legs of the glutton are not formed for running; its pace is very slow, but its cunning supplies the deficiency. It waits the arrival of its prey in ambush, and in order to seize it with greater security, it climbs up a tree, from which it darts down on the elk and the rein-deer, and fastens itself so strongly with its claws and teeth, that all the efforts of the animal cannot remove it. The poor animal in vain flies with utmost speed; in vain rubs itself against trees and other objects—all is useless; fastened on its back and loins, the glutton still persists in tormenting it, by digging into its flesh, and sucking its blood, till the animal, fainting with loss of blood, falls; then the glutton devours it by piecemeal, with the utmost avidity, and obstinate cruelty. It is inconceivable what a length of time the glutton will eat, and what a quantity it will devour at one single meal.

The glutton is hunted for its skin, which makes an exceedingly good and beautiful fur, not inferior to the sable and black fox.

### THE SABLE.

MR. GMELIN, who saw two living ones at the governor of Tobolski's, says—"The sable resembles the marten in its shape and habit of body, and the wea-

sel in the number of its teeth ; it has large whiskers about the mouth, its feet are broad, and armed with five claws, like the rest of its kind. These characters were common to these two sables, but one of them was a dark brown, excepting the ears and the throat, where the hair was rather yellow ; the other, which was the smaller, was more of a yellowish cast, its ears and throat being also much paler. These are the colours they both have in winter, and which they are seen to change in the spring ; the former becoming of a yellow brown, the other of a pale yellow."

These animals inhabit the banks of rivers in shady places, and in the thickest woods. They live on rats, fish, and wild fruit ; they have the disagreeable odour of their kind, which is strongest during the time their heat is on them : they are mostly found in Siberia, and but very few in Russia, and there are still fewer in Lapland and other countries.

The hunting of the sable falls to the lot of condemned criminals, who are sent from Russia into these wild and extensive forests, which for a great part of the year are covered with snow : these unfortunate wretches remain there many years, and are obliged to furnish a certain number of skins every year : they only kill this animal by a single ball, in order to damage it as little as possible ; and sometimes, instead of fire-arms they make use of the cross-bow, and very small pointed arrows.

### THE SEAL.

THIS animal has its head round, like that of the human species ; its snout is broad, the eyes large and elevated, little or no external signs of ears, only two auditory passages in the sides of the head ; it has no whiskers about the mouth, and its teeth somewhat resemble those of the wolf ; the tongue is forked



at the point, the body, hands, and feet, covered with a short bristly hair; it has no legs, but two feet or membranes, like hands, with five toes, terminated by many claws; these membranes which have the appearance of hands, are only larger, and turned backwards, as if designed to unite with its very short tail, which they accompany on both sides.



The sensations of the seal are as perfect as those of any other animal, its body is likewise firm and large; it is armed with sharp teeth and claws, and has many particular and singular advantages over other animals we can compare with it; it endures both heat and cold, and feeds indifferently on grass, flesh, or fish; it can equally live on ice, land, or in the water. This animal and the walrus are the only animals which deserve the name of amphibious, or which have the *foramen ovale* open, consequently they are the only animals of that class which can exist without respiration, and to which the watery element is as agreeable as that of the air.

A modern traveller says;—"They are not easily killed, for although they are mortally wounded, nearly exhausted, and stripped of their skins, yet they still continue alive; indeed, it is a disagreeable sight to see these animals wounded and skinned, wallowing and rolling about in their blood in the greatest agonies."

## CHAPTER X.

The Common Monkey—The Ourang-Outang, or the Pongo and Jocko—The Baboon—The Mandril—The Macacco and Egret—The Malbrouck and Chinese Bonnet—The Striated Monkey—The Douc.



## THE COMMON MONKEY.

THE monkey tribe is very numerous, and is usually classed by naturalists in three divisions.

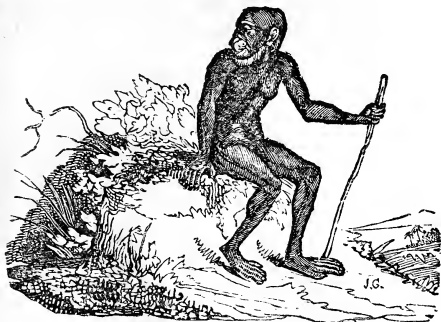
Those which have no tails are termed *apes*, and those which have short tails are denominated *baboons*; but by far the most numerous division consists of those which have long tails, and which are known by the general name of *monkeys*.

## THE OURANG-OUTANG, OR THE PONGO AND JOCKO.

OURANG-OUTANG is the name this animal bears in the East Indies; pongo, its denomination at Lowando, a province of Congo.

We have seen the small ourang-outang, or jocko, alive, and we have preserved its skin, but we can only

speak of the pongo, or great ourang-outang, from the accounts travellers have given us of that animal.



M. de la Bresse assures us "that the ourang-outangs often attempt to surprise the female negroes, which they keep with them for the pleasure of their company, feeding them very plentifully all the time. I knew," continues he, "a woman of Lowando, that had lived among these animals for three years. They grow from six to seven feet high, and are of unequalled strength. They build sheds, and make use of clubs for their defence; their faces are broad, their noses flat, their ears without a tip, their skins are fairer than a Mulatto, but they are covered on many parts of their body with long and tawny-coloured hair; their belly is extremely large, their heels flat, and rising half an inch; they sometimes walk upright,

and sometimes upon all fours, when they are fantastically disposed."

Henry Grose relates, "that these animals are met with in the north of Coromandel; that Mr. Horne, governor of Bombay, had two of them sent him, a male and a female; they were scarcely two feet high, but their form was entirely human; they walked erect upon their feet, and were of a pale colour, without any hairs on any part, except those where mankind generally have them; their actions perfectly resembled the human, and their melancholy plainly evinced how strongly they felt the weight of their captivity. When any person looked at them, they hid those parts with their hands which modesty forbids the sight of. The female," adds he, "died on board, and the male showed all real signs of grief, and took the death of his companion so greatly to heart, that he refused his food, and did not survive her more than two days."



## THE BABOON,

PROPERLY so called, has a pouch on each side of its cheeks ; it has callosities on its posteriors, which are naked, and of a red colour ; its tail is crooked and thick, and about seven or eight inches long. The canine teeth are much thicker and longer than those of men. Its snout is very thick and long ; its ears naked ; its body and limbs are strong, thick and short ; its hair is long and thick, and of a reddish brown colour. It walks oftener on all fours than upright, and is from three to four feet high.



## THE MANDRIL.

THIS baboon is an ugly, disgusting animal, which has two nostrils independent of its nose, whence is always seen issuing a thick matter. Its muzzle is of a bluish colour, and strongly seamed with wrinkles, which still increase its frightful and loathsome appearance.

This baboon is found on the Gold Coast, and in

other southern provinces of Africa, where the negroes call it *boggo*, and the Europeans *mandril*. This animal is the largest of the baboon kind. Smith relates, that a female mandril was given to him which was not above six months old, and had then attained the size of an adult baboon; he likewise acquaints us that these animals walk always erect; that they sigh and cry like the human species; that they have a violent passion for the female sex, and that they never fail to overcome them if they find them within their reach.

### THE MACACCO AND EGRET.

OF all the apes or monkeys with long tails, the macacco approaches nearest the baboon; its body being short and compact, like that animal's; its head thick, its snout broad, its nose flat, its cheeks wrinkled, but it is bulkier and taller than most other monkeys. It is also extremely ugly, that it may well be looked upon as a smaller kind of the baboon, if it did not differ in the tail, which is crooked, but longer and tufted; whereas that of the baboon in general is extremely short. This species is a native of Congo, and other southern parts of Africa. It is numerous, and subject to many varieties with respect to its size, colour, and disposition of the hair.

That which we here term the EGRET, because of the plume on its head, seems to be only a variety of the first, which it perfectly resembles, excepting the difference before mentioned, and some other slight varieties in the hair; both of them are tractable and docile; but independent of the scent they diffuse around them, they are so misshapen, and even so hideous when they grimace, that we cannot look upon them without horror and disgust. These monkeys go in flocks. Basman relates that they take a

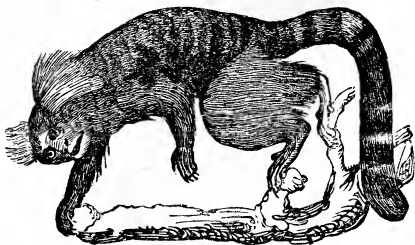
melon in each hand, under their arms, and one in their mouth, which they go off with; if the pursuit is hot, they drop first that from under their arm, then that from their hand; and if it be continued, they at last let fall that which they had hitherto kept in their mouth.

### THE MALBROUCK AND CHINESE BONNET.

THESE two monkeys, or apes, with a long tail, seem to belong to one species. They are found in Bengal, where travellers inform us they plunder whole fields of grain, and plantations of sugar canes; and while one stands sentinel on a tree, the others load themselves with the booty.

The malbrouck has pouches on each side of its cheeks, and callosities on its posteriors; its tail is very near as long as its body and head put together. The eyelids are of a fleshy, and the face of an ash colour; the ears are large, thin, and of a flesh colour; they have a list of grey hairs on them like the mona, but in other parts are of a more uniform colour, approaching towards a brown on the upper parts of the body, and towards grey on the lower. It goes on all fours, and is about a foot, or a foot and a half long, from the snout to the insertion of the tail.

The Chinese bonnet seems to be a variety of the malbrouck; it differs from it in the hair on the crown of its head, which is disposed in the shape of a cap or flat bonnet; and also in its tail, which is large.



### THE STRIATED MONKEY.

THIS creature, one of the prettiest of the monkey tribe, is still smaller than the great-eared monkey, its head and body not exceeding twelve inches in length; its tail is long and bushy, marked with alternate rings of black and ash colour; its face is naked, of a swarthy flesh colour; the ears are large, and of the human form; the body is of a reddish ash colour, slightly undulated with dusky shades; its nails are sharp; and its fingers like those of a squirrel.—It inhabits Brazil; feeds on fruits, vegetables, insects, and snails, and is fond of fish, and the smaller kinds of spiders and their eggs. It may be rendered exceedingly tame; but it is a great enemy to cats. Most of the individuals of this species have a somewhat musky smell. The striated monkey is of a hardy nature, and has sometimes produced young ones in Europe, even as far to the north as Paris. The voice of this creature is a sort of shrill hissing whistle.





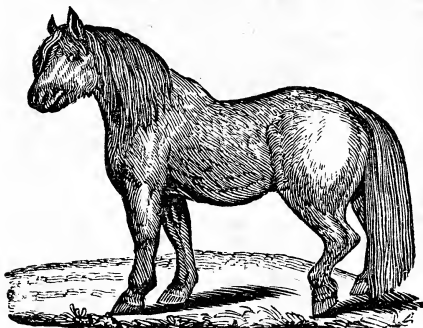
## THE DOUC.

Is the last among the class of animals called apes, baboons, and monkeys. This animal, without belonging to any one of these three precisely, yet partakes of them all. Of the monkey in the length of its tail; of the baboon in its size; and of the ape in the flatness of its face. It has, besides, a very particular character, by which it seems to fill up the chasm between the monkey and the sapajou. These two families of animals differ between themselves, the monkey having fleshy posteriors, and all the sapajous having them covered with hair.

## CHAPTER XI.

## DOMESTIC ANIMALS.

The Horse—The Ass—The Dog, its varieties—The Cat, &c.



THE HORSE.

THE noblest conquest that was ever made by man, is that of this spirited and haughty animal, which shares with him the fatigues of war, and the glory of the combat. Equally intrepid as his master, the horse sees the danger, and braves it: inspired at the clash of arms, he loves it, he seeks it, and is animated with the same ardour. He feels pleasure also in the chase, in tournaments, in the course; he is all fire, but equally tractable as courageous, does not give way to his impetuosity, and knows how to check his inclin-

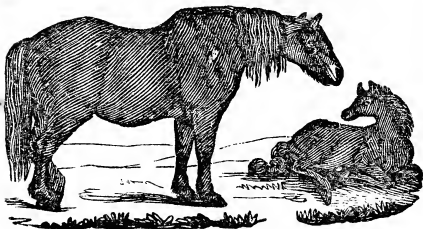
ations; he not only submits to the arm which guides him, but even seems to consult the desires of his rider; and always obedient to the impressions which he receives from him, presses on, moves gently, or stops, and only acts as his rider pleases.

Such is the horse, whose natural qualities art has improved. His education commences with the loss of his liberty, and by constraint it is finished. The slavery or servitude of these creatures is universal; even those whose slavery is the most gentle, who are only fed and broken for luxury and magnificence, and whose golden chains serve less to decorate them than to satisfy the vanity of their masters, are still more dishonoured by the elegance of their trappings, by the tresses of their manes, by the gold and silk with which they are covered, than by the iron shoes on their feet.

Nature is more delightful than art, and in an animated being the freedom of its movements makes nature beautiful: observe the horses in Spanish America, which live wild; their gait, their running, or their leaping, seems neither constrained nor regular. Proud of their independence, they fly the presence of man, and disdain his care; they seek and find for themselves proper nourishment, they wander about in liberty in immense meads, where they feed on the fresh productions of an eternal spring. These wild horses are much stronger, much swifter and more nervous than the greater part of domestic horses: they have, what nature has bestowed upon them, strength and nobleness; the others only what art can give, beauty and cunning.

From time immemorial it has been the custom to separate the colt from their mothers: mares are suffered to suckle them five, six, or seven months; for experience has taught us, that those colts which are suckled ten or eleven months, are not of equal value

with those which are weaned sooner, though they are fuller of flesh.



### THE MARE AND FOAL.

The horse of all animals, is that which, with great stature, has the most complete proportion and elegance in every part of his body; and compared with every other animal he appears superior in these respects. He seems desirous of raising himself above his state of a quadruped, by holding up his head, and in this noble attitude he looks man in the face: his eyes are lively and large, his ears well made and of a just proportion, without being short like those of the bull, or too long like those of the ass; his mane suits well his head, ornaments his neck, and gives him an air of strength and haughtiness; his long bushy tail covers and terminates advantageously the extremities of his body. Mares usually go with foal eleven months and some days; they will breed commonly to the age of fourteen or fifteen years, and the more vigorous longer than eighteen years.

The Arabian horses are the handsomest known in Europe; they are larger and plumper than those of Barbary, and equally well shaped.

The horses of Barbary are more common; they are frequently negligent in their paces, and must be often reminded; they are very swift and strong, light, and very fit for hunting.

The Turkish horses are not so well-proportioned as those of Barbary; they will, however, travel a great way, and are long-winded.

The Spanish horses hold the second rank after those of Barbary; those of a handsome breed are plump, well-coated, and low of stature; they also use much motion in their carriage, and have great suppleness, spirit, and pride; their hair is usually black, or of a bay chestnut colour, though there are some of all colours, and it is seldom that they have white legs and noses.

The handsomest English horses have, in their conformation, great resemblance to those of Arabia and Barbary, from which, in fact they are bred; they are frequently five feet high and above; they are of all colours, have all kinds of marks; they are generally strong, vigorous, bold, capable of great fatigue, and excellent for coursing and hunting.

The horses of Italy were formerly much handsomer than they are at present, because the breed for some time has been neglected; notwithstanding, there are still some handsome Neapolitan horses; but, in general, they have the head large, and the chest thick. These defects, however, are compensated by their noble form, their stateliness, and the beauty of their motions.

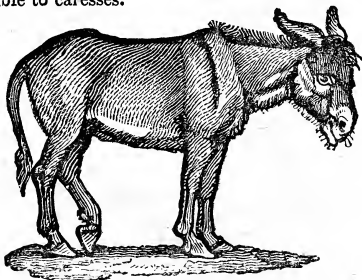
The Danish horses are so handsome in their form, and so beautiful in their coats, that they are preferred to all others for putting into carriages; they are of

all colours; and horses spotted like tigers, are found nowhere but in Denmark.

In Germany we meet with very handsome horses, but they are generally heavy and short breasted. The hussars and Hungarians split their nostrils, with a view, as they say, of giving them more breath, and also to hinder them from neighing in battle.

The Flemish horses are greatly inferior to those of Holland; they have also all large heads, flat feet, and are subject to humours in the eyes; and these two last are essential defects in coach horses.

When the horse is impassioned with love, desire, or appetite, he shows his teeth, and seems to laugh; he shows them also when he is angry, and would bite; he sometimes puts out his tongue to lick, but less frequently than the ox, which, notwithstanding, is less sensible to caresses.



THE ASS.

If we consider this animal with some degree of attention, he appears only to be a horse degenerated. The perfect similitude in the conformation of the internal

parts, and the great resemblance of the body, legs, feet, and the entire skeleton, is a sufficient foundation for this opinion; we may also attribute these slight differences which are found between these two animals, to the influence of the climate, food, and the fortuitous succession of many generations of small wild horses, half degenerated, which, by little and little, have still continued degenerating, and have at last produced a new and fixed species; or rather, a succession of individuals alike, all vitiated in the same manner, sufficiently differing from a horse to be looked upon as another species.

The ass is three or four years in growing, and lives twenty-five or thirty years. They sleep less than the horse, and do not lie down to sleep unless when quite tired.

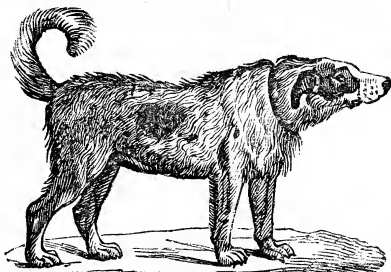
The ass with the mare produces large mules, and the horse with the she-ass produces small mules, differing from the first in many respects.

As wild asses are unknown in these climates, we cannot in reality say whether the flesh is good to eat; but it is certain that the flesh of the domestic ass is extremely bad, and harder than that of the horse.

The milk of the ass is an approved and specific remedy for certain complaints, and its use was known from the Greeks to us. That it may be good in its kind, we should choose a young healthy she-ass, full of flesh, which has lately foaled, and which has not since been with the male; care must be taken to feed her well with hay, wheat, and grass, with particular care not to let the milk cool, and not even to expose it to the air, which will spoil it in a little time.

The skin of the ass is used for different purposes, such as to make drums, shoes, &c., and thick parchment for pocket-books, which is slightly varnished over. It is also of asses' skin that the Orientals make the sagri, which we call shagreen.

The ass is, perhaps, with respect to himself, the animal which can carry the greatest weight; and as it costs but little to feed him, and he scarcely requires any care, he is of great use in the country, at the mill, &c.; he also serves to ride on, as all his paces are gentle, and he stumbles less than the horse.



### THE NEWFOUNDLAND DOG.

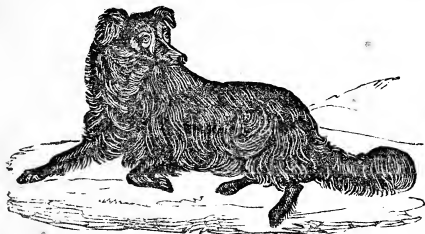
THE dog, independently of its beauty, vivacity, strength, and swiftness, has all the interior qualities which can attract the regard of man. The tame dog comes to lay at his master's feet his courage, strength, and talents, and waits his orders to use them; he consults, interrogates, and beseeches; the glance of his eye is sufficient; he understands the signs of his will.

When the care of the house is intrusted to the dog during the night, he becomes more fiery, and sometimes ferocious; he watches, he walks his rounds, he scents strangers afar off; and, if they happen to stop or attempt to break in, he flies to oppose them, and by reiterated barkings, efforts, and cries of pas-



sion, he gives the alarm. As furious against men of prey as against devouring animals, he flies upon, wounds, and tears them, and takes from them what they were endeavouring to steal: but, content with having conquered, he rests himself upon the spoil, will not touch it even to satisfy his appetite, and at once gives an example of courage, temperance, and fidelity.

To give a clear idea of the order of dogs, of their generation in different climates, and of the mixture of their breeds, I here join a table, or rather a kind of genealogical tree, in which, with a glance of the eye, all the different varieties of the species may be seen.



The *shepherd's dog* is the stock or body of the tree. This dog, transported into the rigorous climate of the north, as into Lapland for example, has become ugly and small; he seems, however, to have been kept up, and even brought to perfection in Iceland, Russia, and Siberia, where the climate is rather less rigorous, and where the people are more civilized.

The same shepherd's dogs, transported into temperate climates, such as those of England, France, or

Germany, lose their savage air, their straight ears, their long, thick, and rough hair, and become *mastiff*, *hound* or *bull-dog*, by the influence of climate merely.

The *hound*, the *setting dog*, and the *terrier*, are only one and the same race of dogs; for it has been remarked, that the same birth has produced setting dogs, terriers, and hounds, though the hound bitch has only been covered by one of the three dogs.

The *beagle*, and almost all sorts of dogs transported into Spain and Barbary, have the hair fine, long, and thick, and become *spaniels* and *barbets*. The great and little spaniel, which differs only in size, when transported into England, change their colour from black to white, and, by the influence of the climate, are become large, small, and shaggy. To these we may also join the *terrier*, which is but a black beagle like the others, but with liver-coloured marks on the fore feet, the eye, and the snout.

The shepherd's dog, transported into the north, is become a *large Dane*, and into the south is become a *greyhound*. The large greyhounds come from the Levant; those of a middling size from Italy; and greyhounds from the latter of these places, when transported into England, become smaller greyhounds.

The large Danes, transported into Ireland, Ukrain, Tartary, Epirus, and Albania, are become large *Irish dogs*, and in size surpass all the rest of the species.

The greyhound and the shepherd's dog have produced the *mongrel greyhound*, which is called the greyhound with wolf's clothing.

The large Dane and the large spaniel have produced together the *dog of Calabria*, which is a handsome dog, with long, thick hair, and taller than the larger mastiff.

The spaniel and the terrier produce a dog called the *Burgundy spaniel*.

The spaniel and the little Dane produce the *lion-dog*, which is very scarce.

The *dog of Burgos* comes from the large spaniel and the barbet.

The *little barbet* comes from the small spaniel and the barbet.

The bull-dog produces, with the mastiff, a mongrel, which is called the *strong bull-dog*, and is larger than the real bull-dog.

The *pug* comes from the English bull-dog and the little Dane.

All these races are simple mongrels, and come from the mixture of two pure races; but there are other dogs which may be called double mongrels, because they come from a mixture of a pure race, and of one already mixed.

The *shock-dog* is a double mongrel, which comes from the pug and the small Dane.

The *dog of Alicant* is also a double mongrel, which is produced by the pug and the little spaniel.

The *Maltese*, or lap-dog, is a double mongrel, and comes from the small spaniel and the barbet.

## THE CAT,

THOUGH an animal of prey, is a useful domestic, it is neither wanting in sagacity nor sentiment; but its attachment is stronger to places than to persons. The form of its body corresponds with its disposition. The cat is handsome, light, adroit, cleanly, and voluptuous; he loves ease, and searches out the softest furniture in order to repose on, and rest himself.

Cats go with young fifty-five or fifty-six days; they are not so prolific as dogs, and their usual number is four, five, or six. Young cats are gay, lively, pretty,

and would be very proper to amuse children, if the strokes of their paws were not to be feared. Their disposition, which is an enemy to all restraint, renders them incapable of a regular education.

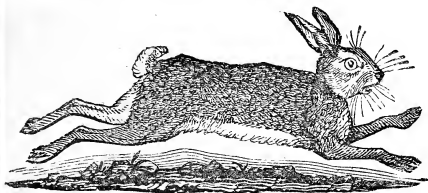


In the eye of the cat, a contraction and dilatation are so considerable, that the pupil, which in obscurity is large and round, becomes in broad day long and narrow, like a line; and for this reason these animals see better during the night than during the day, the form of the pupil being always round when it is not constrained.

Cats seem to have a natural dread of water, cold, and bad smells. They are very fond of perfumes, and gladly suffer themselves to be taken and caressed by persons who use them. The scent of valerian has so powerful and so delicious an effect upon them that they appear transported with pleasure by it. They will smell it afar off, will run and rub themselves with it, and will pass and repass so often over it as to destroy it in a very short space of time.

As they are exceedingly cleanly, and as their coat is always dry and shining, their hair easily electrifies; and sparks are seen to come from it when rubbed with the hand in any dark place. Their eyes shine in the dark almost like diamonds, and reflect outwardly during the night the light which they may be said to have imbibed during the day.

In this climate we know but one species of wild cat; and it appears from the testimony of travellers, that this species is found in almost all climates, without any great variety. There were some of them on the continent of the New world before it was discovered. They have also been seen in several parts of Africa, as in Guinea, at the Gold Coast, at Madagascar, and at the Cape of Good Hope, where Kolbe says there are also, though in a smaller number, wild cats of a blue colour; and these blue, or rather slate-coloured cats, are found again in Asia.



## THE HARE.

THOSE species of animals which are the most numerous, are not always the most useful: but the species of the hare and of the rabbit are advantageous to us, both as to their number and their utility. Hares are universally and abundantly spread over the face of the whole earth; and rabbits, though they originated only in particular climates, do yet multiply so prodigiously in almost every place to which they are transported, that it is no longer possible to extirpate them, and no small art is required in order to diminish their number.

In those districts which are reserved for the chase. four or five hundred hares are killed in the course of one day's sport.

Hares sleep much, but always with their eyes open. They have no eye-lashes, and seem to have but bad eyes; as if, however, to compensate for this defect, their hearing is exceedingly acute, and their ears are very large, compared with the size of their body.



### THE RABBIT.

THOUGH the hare and the rabbit are externally, as well as internally, very much alike, yet as they do not intermix together, they form two distinct and separate species.

The fecundity of the rabbit is even greater than that of the hare; and, without crediting what Wotton has advanced, that one pair only, being left together in an island, produce six thousand in one year, it is certain, that were it not for the use we make of the dog and the ferret, they would reduce the country to a desert. The domestic rabbits, like all other domestic animals, vary in their colour: white, black, and grey, belong properly to nature. The black rabbits are the most scarce.

These animals are able to engender and produce at the age of five or six months. The female goes with young thirty, or thirty-one days, and will produce five, six, and sometimes eight at a birth.

## PART II.

### CHAPTER I.

#### BIRDS IN GENERAL.

*The Struthious or Ostrich Order.*—The Ostrich. The Tou-you. The Cassowary. The Dodo. The Solitary. The Nazarene.

*Rapacious Birds.*—The Golden Eagle—*different species of Eagles—the Osprey, &c.—the Condor.* The Vulture—*different species of Vultures—the King Vulture—the Secretary, &c.* The Falcon—*species of Falcons and other Hawks—the Kite—the Buzzard—the Shirke, or Butcher-bird.* The Owl.—*Species of the Owl.*

QUADRUPEDS, in their general structure, have much relation with that of man; but the structure of birds is, in most respects, entirely dissimilar from both. One obvious mark of distinction between this class of animals and the quadruped part of the creation is, that, instead of hair, birds are covered with feathers, and these appear to be nourished, and kept in order in a different manner from the hair of animals. Lest the feathers should spoil by exposure to the air, the bird is furnished with a gland, situated on the rump of the animal, containing a proper quantity of oil, which it presses out with its beak, and occasionally

anoints its feathers. In water-fowl this oil is so plentiful that it even imparts a degree of rancidity to the flesh, and we see that their coat of feathers is rendered by it completely water-proof.

The wings of birds are remarkably strong. The flap of a swan's wing would break a man's leg, and a similar blow from an eagle has been known to lay a man dead in an instant.

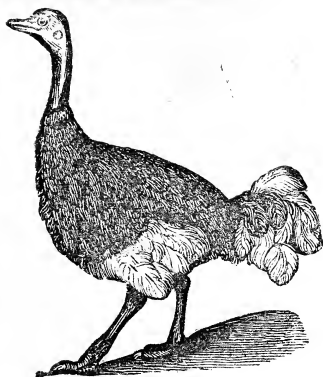
The sense of seeing in birds is very acute, and though they have no external ear, but only two small orifices, or ear-holes, yet they do not appear to be deficient in hearing. The scent of some species is exquisitely delicate. In decoys, where ducks are caught, the men who attend them generally keep a piece of turf lighted, on which they breathe, lest the fowl should smell them and fly away.

The voice of birds is much louder in proportion to their size than that of other animals, for, in fact, the bellowing of an ox is not louder than the scream of a peacock.

The legs, the wings, the bones, and every part of the body, are much lighter, firmer, and more compact in birds than in other creatures. Their lungs are extended all over the cavity of their body.

Carnivorous birds, like carnivorous quadrupeds, have but one stomach, and that well calculated for digestion. Those that feed on grain, in addition to the crop or stomach, where their food is moistened or swelled, a gizzard, which is a very hard muscle, almost cartilaginous or gristly, and which they commonly fill with small stones, where their food is afterwards ground in order to its complete digestion.





## THE OSTRICH

Is a bird very anciently known, since it is mentioned in the oldest of books. It has furnished the sacred writers with some of their most beautiful imagery, and its flesh was, even previous to the days of Moses, apparently a common species of food, since we find it interdicted, among other unclean animals, by the Jewish legislator.

The ostrich is generally considered as the largest of birds, but its size serves to deprive it of the principal excellence of this class of animals—the power of flying. The medium weight of this bird may be estimated at seventy five or eighty pounds, a weight which would require an immense power of wing to elevate it into the atmosphere; and hence all those of the feathered tribe, which approach to the size of the ostrich, such as the touyou, the cassowary, the dodo,

neither possess nor can possess the faculty of flight. The head and bill of the ostrich somewhat resemble those of a duck; and the neck may be compared to that of a swan, only that it is much longer; the legs and thighs resemble those of a hen, though the whole appearance, at a distance, bears a strong resemblance to a camel; it is usually seven feet high from the top of the head to the ground, but from the back it is only four, so that the head and neck are above three feet long. From the top of the head to the rump, when the neck is stretched out in a right line, it is six feet long, and the tail is about a foot more. One of the wings without the feathers is a foot and a half, and being stretched out with the feathers is three feet.

The plumage is much alike in all; that is, generally black and white, though some of them are said to be grey. The greatest feathers are at the extremities of the wings and tail, and the largest are generally white. The next row is black and white; and of the small feathers of the back and belly, some are white and others black. There are no feathers on the sides, nor yet on the thighs, nor under the wings. The lower part of the neck, about half way, is covered with still smaller feathers than those on the belly and back, and these, like the former, also are of different colours. The head and upper part of the neck are covered with hair.

At the end of each wing there is a kind of spur, almost like the quill of a porcupine. It is an inch long, being hollow, and of a horny substance. There are two of these on each wing, the largest of which is at the extremity of the bone of the wing, and the other a foot lower. The neck seems to be slender in proportion to that of other birds, from its not being furnished with feathers.

The thighs are very fleshy and large, being cover-

ed with a white skin, inclining to redness, and wrinkled in the manner of a net; whose meshes will admit the end of a finger. Some have very small feathers here and there on the thighs, and others again have neither feathers nor wrinkles. The legs are covered before with large scales. The end of the foot is cloven, and has two very large toes, also covered with scales. The largest, which is on the inside, is seven inches long, including the claw, which is near three-fourths of an inch in length, and almost as broad. The other toe is but four inches long, and is without a claw.

The ostrich is a native only of the torrid regions of Africa, and has never bred out of that country which first produced it. This bird, so disqualified for society with man, inhabits from preference, the most solitary and horrid deserts, where there are few vegetables to clothe the surface of the earth, and where the rain never comes to refresh it. The Arabians assert that the ostrich never drinks, and the place of its habitation seems to confirm the assertion. In these formidable regions, ostriches are seen in large flocks, which, to the distant spectator, appear like a regiment of cavalry, and have often alarmed a whole caravan. There is no desert, how barren soever, but is capable of supplying these animals with provision; they eat almost every thing; and these barren tracts are thus doubly grateful, as they afford both food and security.

The ostrich is of all animals the most voracious. It will devour leather, grass, hair, iron, stones, or any thing that is given. Nor are its powers of digestion less in such things as are digestible. Those substances which the coats of the stomach cannot soften, pass whole; so that glass, stones, or iron, are excluded in the form they are devoured. All metals indeed,

which are swallowed by any animal, lose a part of their weight, and often the extremities of their figure, from the action of the juices of the stomach upon their surface.

The ostrich lays very large eggs, some of them being above five inches in diameter, and weighing upwards of fifteen pounds. These eggs have a very hard shell, somewhat resembling those of the crocodile, except that those of the latter are less and rounder.

The season for laying depends on the climate; in the northern parts of Africa it is about the beginning of July; in the south it is about the latter end of December. These birds are very prolific, and lay generally from thirty to forty eggs in a season, and about twelve at one clutch. It has been generally reported that the female deposits them in the sand, and covering them up, leaves them to be hatched by the heat of the climate, and then permits them to shift for themselves. Very little of this, however, is true: no bird has a stronger affection for her young than the ostrich, and none watches her eggs with greater assiduity. Though she sometimes forsakes them by day, she always carefully broods over them by night; nor is it more true that they forsake their young after they are excluded the shell. On the contrary, the young ones are not even able to walk for several days after they are hatched. During this time the old ones are very assiduous in supplying them with grass, and very careful to defend them from every danger.

The strength and size of the ostrich have suggested to man the experiment of using them as animals of burthen. The tyrant Firmius, who reigned in Egypt about the end of the third century, was frequently carried by large ostriches. Vallisnieri also

speaks of a young man, who exhibited himself upon one of these birds at Venice. In fine, M. Adanson saw, at the factory of Podor, two ostriches which were yet young, of which the stronger went at a pace which would have distanced the fleetest English race-horse, with two negroes on its back. Whether this bird could be broken and tamed so as to carry its rider with the same safety and docility as a horse, is a different question : and let it be remembered, that though the ostriches above-mentioned ran for a short time faster than a race-horse, there is no reason to believe they could hold out so long.

From ancient writers we learn, that whole nations have acquired the name of *Struthophagi*, (ostrich eaters) from the preference which they manifested for the flesh of this bird. Apicius has recommended a peculiar sauce for the ostrich, which shews at least that it was eaten among the Romans, and at a single feast the Emperor Heliogabalus was served with the brains of six hundred of these animals. The skin of the ostrich is so thick, that it is used for leather by the Arabians ; and of the eggs drinking cups are made. The value of the plumage is well known in most countries of Europe.

The Arabs hunt the ostrich with their best and fleetest horses. As soon as the hunter comes within sight of his prey, he puts on his horse, with a gentle gallop, to keep the ostrich still in sight, yet not so as to terrify him from the plain into the mountains. Upon observing himself pursued, the ostrich begins to run at first gently. In this situation he somewhat resembles a man at full speed ; his wings, like two arms, keep working with a motion corresponding with that of his legs ; and his speed would very soon snatch him from the view of his pursuers, but, instead of going off in a direct line, he takes his

course in circles; while the hunters still make a course within, relieve each other, meet him at unexpected turns, and keep him thus still employed, still followed, for two or three days together. At last, spent with fatigue and famine, and finding all power of escape impossible, he endeavours to hide himself from those enemies he cannot avoid, and covers his head in the sand, or the first thicket he meets. Sometimes, however, he attempts to face his pursuers, and though, in general, the most gentle animal in nature, when driven to desperation, he defends himself with his beak, his wings, and his feet. Such is the force of his motion, that a man would be utterly unable to withstand him in the shock.

### THE TOUYOU,

WHICH may be called the American ostrich, is not an ostrich, though the travellers who have mentioned it seem to have been more solicitous of proving the affinity to that animal, than describing those peculiarities which distinguish it from all others of the feathered creation.

It is chiefly found in Guinea, along the banks of the Oronooko, in the inland provinces of Brazil and Chili, and the vast forests that border on the mouth of the river Plata. Many other parts of South America were known to have them; but as man multiplied, these large and timorous birds either fell beneath their superior power, or fled from their vicinity.

The touyou, though not so large as the ostrich, is only second to it in magnitude. It is by much the largest bird on the New Continent, and is generally found to be six feet high, measuring from its head to the ground. Its legs are three feet long, and its thigh is nearly as thick as that of a man. Its body is of an oval form, and appears entirely round. It is

covered from the back and rump with long feathers; these feathers are grey upon the back, and white on the belly, and it has no other tail.

Nieremberg relates that during incubation, they generally make a false nest at some distance from the true one; in this they lay two eggs, which are afterwards broken by the old bird, and by attracting a number of flies, beetles, &c., afford a means of sustenance to the young.

When first hatched, the young ones are familiar, and follow the first person they meet. They are at first extremely harmless and simple, but as they grow older they become more cunning and distrustful.

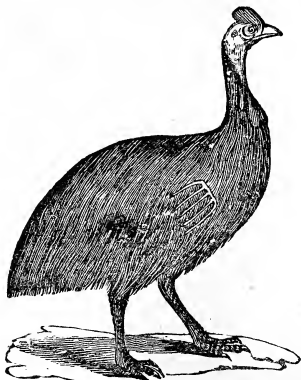
### THE CASSOWARY

Is a bird which was first brought into Europe by the Dutch, from Java, in the East Indies, in which part of the world it is only to be found.

The cassowary, though not so large as the former, yet appears more bulky to the eye; its body being nearly equal, and its neck and legs much thicker and stronger in proportion; this conformation gives it an air of strength and force, which the fierceness and singularity of its countenance conspire to render formidable.

In other birds, a part of the feathers serve for flight, and are different from those which serve for mere covering; but in the cassowary, all the feathers are of the same kind, and outwardly of the same colour. They are generally double; having two long shafts growing out of a short one, which is fixed in the skin. The beards that adorn the stem or shaft are, about half way to the end, very long, and as thick as a horse-hair, without being subdivided into fibres. The stem or shaft is flat, shining, black, and

knotty below, and from each knot there proceeds a beard; the beards at the end of the large feathers are also perfectly black, and, towards the roots, of a grey tawny colour, shorter, softer, and throwing out fine fibres like down; so that nothing appears except the ends, which is hard and black, because the other part, composed of down, is quite covered. There are feathers on the head and neck, but they are so short and thinly sown, that the bird's skin appears naked, except towards the hinder part of the head, where they are a little longer. The wings, when they are deprived of their feathers, are but three inches long. The ends of the wings are adorned with five prickles, of different lengths and thicknesses, which bend like a bow; the longest is eleven inches, and it is a quarter of an inch in diameter at the root, being thicker than towards the extremity; the point seems broken off.





The part, however, which most distinguishes this animal is the head; this, though small, like that of an ostrich, does not fail to inspire some degree of terror. It is bare of feathers, and is in a manner armed with a helmet of a horny substance, that covers it from the root of the bill to nearly half the head backwards. Its substance is very hard, being formed by the elevation of the bone of the skull; and it consists of several plates, one over another, like the horn of an ox. To the peculiar oddity of this natural armour may be added the colour of the eye in this animal, which is a bright yellow, and the globe being above an inch and a half in diameter, gives it an air equally fierce and extraordinary. The thighs and legs are covered with feathers, and are extremely strong, thick, and straight; but the legs are thicker a little above the foot than any other place. The toes are covered with scales, and are but three in number, for that which could be behind is wanting.

Thus formed for a life of hostility, for terrifying others, and for its own defence, it might be expected that the cassowary was one of the most fierce and terrible animals of the creation. But nothing is so opposite to its natural character. It never attacks others; and instead of the bill, when attacked, it rather makes use of its legs, and kicks like a horse, or runs against his pursuer, beats him down, and treads him to the ground.

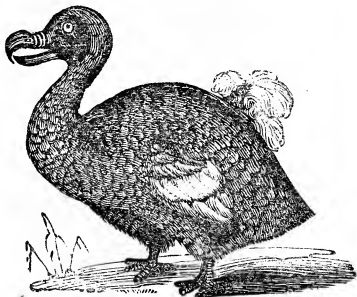
The manner of going of this animal is not less extraordinary than its appearance. Instead of going directly forward, it seems to kick with one leg, and then making a bound onward with the other, it goes with such a prodigious velocity, that the swiftest racer would be left far behind.

The same degree of voraciousness which we perceive in the ostrich, obtains as strongly here. The

cassowary swallows every thing that comes within the capacity of his gullet. The Dutch assert, that it can devour not only glass, iron, and stones, but even live on burning coals, without testifying the smallest fear, or feeling the least injury.

The cassowary's eggs are of a grey ash colour, inclining to green. The largest is found to be fifteen inches round one way, and about twelve the other. The voice of this bird resembles the grunting of a hog.

The southern parts of the most eastern Indies seem to be the natural climate of the cassowary. His domain, if we may so call it, begins where that of the ostrich terminates. The latter has never been found beyond the Ganges; while the cassowary is never seen nearer than the Islands of Banda, Sumatra, Java, the Molucca Islands, and the corresponding parts of the continent.



THE DODO.

SWIFTNESS is generally considered as the peculiar attribute of birds, but the dodo, instead of exciting

that idea by its appearance, seems to strike the imagination as a thing the most unwieldy and inactive in all nature. Its body is massive, almost cubical, and covered with grey feathers; it is just barely supported upon two short, thick legs, like pillars. The neck, thick and puffy, is joined to the head, which consists of two great chaps, that open far behind the eyes, which are large, black, and prominent, so that the animal, when it gapes, seems to be all mouth. The dodo is furnished with wings, covered with soft ash-coloured feathers; but they are too short to assist it in flying. It is furnished with a tail, and with a few small curled feathers, but this tail is disproportioned and displaced. Its legs are too short for running, and its body too fat to be strong.

This bird is a native of the isle of France; and the Dutch, who first discovered it there, called it in their language the *nauseous bird*, as well from its disgusting figure, as from the bad taste of the flesh. Succeeding observers, however, contradict this last report, and assert that its flesh is good and wholesome eating. It is a simple bird, and is very easily taken. Three or four dodos are enough to dine a hundred men.

### THE SOLITARY

Is a large bird which inhabits the Isle of Roderique, and receives its name from its solitary habits, scarcely more than two ever being found together. The male is said to weigh sometimes forty-five pounds. It has some relation to the turkey, but its bill is more bent. The colour of its plumage is grey and brown mixed, and it has scarcely any tail. The wings are too short for flight, and the bone of the pinion swells out into a kind of round knob. The females are sometimes covered with light yellow feathers, and

they have also a widow's peak above the bill. They lay only one egg, and sit seven weeks. It is said that a stone is always found in the gizzard both of this bird and the dodo; it is, however, probably only of the same kind, and for the same purpose as those which are found in all carnivorous birds, and serves merely to prove them of that kind. They are hunted from March to September, and being then extremely fat, the young ones are much esteemed as food.

### THE NAZARENE

Is found at present in the Isle of France, though it evidently takes its name from having been originally a native of the Isle of Nazareth. It is larger than the swan, with the bill bent a little downwards. Instead of feathers it is covered with a black down; but the wings are feathered, and there are some frizzled feathers on the rump. The legs are scaly, with three toes to each foot. The female lays but one egg.

Both these last-mentioned birds have much affinity with the dodo, if indeed they be any more than simple varieties.

## OF RAPACIOUS BIRDS.



## THE EAGLE.



THE GOLDEN EAGLE

Is the largest and noblest of all those birds that have received the name of eagle. The length of the female is three feet and a half; the extent of its wings eight and a half; it weighs from sixteen to eighteen pounds, but the male seldom weighs more than twelve pounds. Its bill is three inches long, and of a deep blue, and the eye of a very brilliant hazel colour. The sight

and sense of smelling are very acute. The head and neck are clothed with narrow, sharp-pointed feathers, of a deep brown colour, bordered with tawny; but those on the crown of the head, in very old birds, turn grey. The whole body, above as well as beneath, is of a dark brown; and the feathers of the back are finely clouded with a deeper shade of the same. The wings when clothed reach to the end of the tail. The quill feathers are of a chocolate colour, the shafts white. The tail is of a deep brown, irregularly barred and blotched with an obscure ash-colour, and usually white at the roots of the feathers. The legs are yellow, short, and very strong, being three or four inches in circumference, and feathered to the very feet. The toes are covered with large scales, and armed with the most formidable claws, the middle of which are two inches long.

In general, these birds are found in the mountainous and ill-peopled countries, and breed among the loftiest cliffs. They choose those places which are remotest from man, upon whose possessions they but seldom make their depredations, being contented rather to follow the wild game of the forest than to risk their safety to satisfy their hunger.

It requires great patience and much art to tame an eagle, and even though taken young, and brought under by long assiduity, yet still it is a dangerous domestic, and often turns its force against its master.

Of all Birds the eagle flies highest, and on this account he was called by the ancients the bird of Jove. Of all birds, also, he has the quickest eye; but his sense of smelling is far inferior to that of the vulture. He never pursues, therefore, but in sight; and when he has seized his prey, he stoops from his height, as if to examine its weight, always laying it on the ground before he carries it off. As his wing is very

powerful, yet, as he has but little suppleness in the joints of his legs, he finds it difficult to rise when down; however, if not instantly pursued, he finds no difficulty in carrying off geese and cranes. He also carries away hares, lambs, and kids; and often destroys fawns, and calves, to drink their blood, and carries a part of their flesh to his retreat. Infants themselves, when left unattended, have been destroyed by these rapacious creatures; which probably gave rise to the fable of Ganymede's being snatched up by an eagle to heaven.

The eagle is thus at all times a formidable neighbour, but peculiarly so when bringing up its young. It is then that the female, as well as the male, exert all their force and industry to supply their young. Smith, in his "History of Kerry," says that a poor man in that country got a comfortable subsistence for his family, during a summer of famine, out of an eagle's nest, by robbing the eaglets of food, which was plentifully supplied by the old ones. He protracted their assiduity beyond the usual time, by clipping the wings, and retarding the flight of the young.

In order to extirpate these pernicious birds, there is a law in the Orkney Islands which entitles any person that kills an eagle to an hen out of every house in the parish in which the plunderer is killed.

The nest of the eagle is usually built in the most inaccessible cliff of the rock, and often shielded from the weather by some jutting crag that hangs over it. Sometimes, however, it is wholly exposed to the winds, as well sideways as above; for the nest is flat, though built with great labour. It is said that the same nest serves the eagle during life; and indeed the pains bestowed in forming it seem to argue as much. It is asserted that as soon as the young ones

are somewhat grown, the mother kills the most feeble or voracious. If this happens, it must proceed only from the necessities of the parent, who is incapable of providing for its support, and is content to sacrifice a part to the welfare of the majority.

The plumage of the eaglets is not so strongly marked as when they come to be adult. They are at first white, then inclined to yellow, and at last light brown. Age, hunger, long captivity, and diseases make them whiter. It is affirmed that they live above a hundred years, and that they at last die, not of old age, but from the beak turning inward upon the under mandible, and thus preventing their taking any food. Indeed they are equally remarkable for their longevity, and for their power of sustaining a long abstinence from food.

Such are the general characteristics and habitudes of the eagle; in some, however, these habitudes differ, as the sea eagle and the osprey live chiefly upon fish, and consequently build their nests on the sea-shore, and by the side of rivers, on the ground, among reeds; and often lay three or four eggs, rather less than those of a hen, of a white elliptical form. They catch their prey, which is chiefly fish, by darting down upon them from above.

The distinctive marks of each species are as follows :—

The **GOLDEN EAGLE**; of a tawny, iron colour, the head and neck of a reddish iron, the tail feathers of a dirty white, marked with cross bands of tawny iron, the legs covered with tawny iron feathers.

The **COMMON EAGLE**; of a brown colour, the head and upper part of the neck inclining to red, the tail feathers white and blackening at the end, the outer on each side of an ash colour, the legs covered with feathers of a reddish brown.





The **BALD EAGLE**; brown, the head, neck, and tail feathers white; the feathers of the upper part of the leg brown. Its length is three feet three inches. Inhabits both Europe and America.

The **WHITE EAGLE**; the whole white. Probably all white eagles are only varieties.

The **ROUGH-FOOTED EAGLE**; of a dirty brown, spotted under the wings and on the legs with white, the feathers of the tail white at the beginning and the point, the leg feathers dirty brown, and spotted with white. This eagle is only about two feet and a half in length.

The **ERNE**; a dirty iron colour above, an iron mixed with black below; the head and neck ash, mixed with chesnut; the points of the wings blackish, the tail feathers white, and the legs naked.

The **RING-TAILED EAGLE**; blackish, the head and

upper part of the neck mixed with red; the tail-feathers the first half white, speckled with black, the other half blackish; the leg-feathers dirty white.

The **OSPREY**; brown above, white below, the back of the head white, the outward tail-feathers, on the inner side, streaked with white; its legs are naked.

The **EAGLE OF BRAZIL**; blackish brown; ash colour mixed on the wings; tail-feathers white; legs naked.

The **OROONOKO EAGLE**; with a topping above, blackish brown; below, white spotted with black; upper neck yellow; tail-feathers brown with white circles; leg-feathers white, spotted with black.

The **CROWNED AFRICAN EAGLE**, with a topping; the tail of an ash colour, streaked on the upper side with black.

The **EAGLE OF PONDICHERY**; chesnut colour, the six outward tail-feathers black one-half.

The **CHINESE EAGLE**; reddish brown, with a bar of dark brown across the middle of the wing.

Besides these, authors have enumerated many others, which, to particularize, would add nothing to the entertainment of the reader.

## THE CONDOR.

OF all the birds which are endowed with the power of flight, the condor must be allowed to be the largest. It also possesses, in a higher degree than any of the feathered tribe, all the qualities that render it formidable, not only to animals of its own kind, but to beasts, and even to man himself. It is eighteen feet across the wings when extended. The beak is so strong as to pierce the body of a cow, and two of them are able to devour it. They do not even abstain from man himself; but fortunately there are but few of the species. The Indians assert that they

will carry off a deer or a young calf in their talons, as eagles a hare or a rabbit.



The condor is of a brown colour ; round the neck they have often a white ruff, and on their head a brown comb, which, however, is not indented like the cock. It has, by some naturalists, been classed among the vultures, on account of its neck and head, which are bare of feathers ; but if we judge by its natural habits, and internal qualities, we should rather place it among the eagles, whom it rivals in fierceness as well as in courage.

It is doubted whether this animal be proper to America only, or whether it may not have been described by the naturalists of other countries. It is supposed that the great bird called the roc, described by Arabian writers, and so much exaggerated in fable, is but a species of condor. The great bird of

Tarnassar, in the East Indies, which is larger than the eagle, as well as the vulture of Senegal, which carries off children, are probably no other than the bird we have been describing. Russia, Lapland, and even Switzerland and Germany, are said to have known this animal. It is principally seen in the desolate regions of Pachomac.



### THE VULTURE.

THE first rank among birds of prey has been assigned to the eagle, not because it is larger than the vulture, but because it is more noble and courageous, and possesses, at least, as much an inclination for war as an appetite for prey; the vulture is deficient in all the respectable qualities of the eagle, and only rivals it in size, in strength, and in rapacity.

Vultures may be easily distinguished from all those of the eagle kind, by the nakedness of their heads and necks, which are without feathers, and only covered

with a slight down, or a few scattered hairs. Their eyes are more prominent; those of the eagle being buried more in the socket. The claws are shorter, and less hooked.

The inside of the wing is covered with a thick down, which is different in them from all other birds of prey. Their attitude is not so upright as that of the eagle, and their flight more difficult and more heavy.

They are still more strongly marked by their nature, which in all vultures is cruel, unclean, and indolent. Their sense of smelling, however, is amazingly great; for this purpose they have two large apertures or nostrils without, and an extensive olfactory membrane within. They seem adapted, inwardly, not only for being carnivorous, but to eat corn or whatever of that kind comes in their way.

This bird, which is common in many parts of Europe, and but too well known on the western continent, is totally unknown in England. In Egypt, Arabia, and many other kingdoms of Asia and Africa, vultures are found in great abundance. The inside down of their wing is converted into a warm and comfortable kind of fur, and is commonly sold in Asiatic markets.

The sloth, the filth, and wretchedness of these birds almost exceed credibility. In the Brazils, where they are found in great abundance, when they light upon a carcass which they have liberty to tear at their ease, they so gorge themselves that they are unable to fly, but keep hopping along when they are pursued. At all times they are birds of slow flight, and unable readily to raise themselves from the ground, but when they have overfed they are utterly helpless; they soon, however, get rid of their burthen, for they have a method of vomiting what they have eaten, and then fly off with great facility.

Of all creatures, the two most at enmity are the vulture of Brazil and the crocodile. The female of this terrible amphibious creature, which in the rivers of that part of the world grows to the size of twenty-seven feet, lays its eggs, to the number of one or two hundred, in the sands or the sides of the river, where they are hatched by the heat of the climate. In the mean time a number of vultures sit, silent and unseen, in the branches of some neighbouring forest, and view the crocodile's operations with the pleasing expectation of succeeding plunder. They patiently wait till the crocodile has laid the whole number of her eggs, till she has covered them carefully with the sand, and until she has retired from them to a convenient distance. Then, altogether, encouraging each other with cries, they pour down upon the nest, hook up the sand in a moment, lay the eggs bare, and devour the whole brood without remorse. The flesh of these animals is stringy, nauseous, lean, and unsavoury.

These birds, at least those of Europe, usually lay two eggs at a time, and produce but once a year. They make their nests in inaccessible rocks, and in places so remote that it is extremely rare to find them.

The most remarkable species of the vulture are as follows:—

The **ALPINE VULTURE**, or *percnopter*. The male of which, Linnæus says, is wholly white; the quills black with hoary edges, except the two outer ones, which are entirely black. The female is quite brown, except the four outer quills, which are black. In size it exceeds the common eagle. They fly in troops, and are very useful in destroying mice.

The **FULVOUS VULTURE**, or *griffon*. It is about three feet six inches in length, and eight feet in the wings. The head, neck, and ruff, are white; the back reddish grey; the quills and tail black; the breast

bare of feathers, and covered with downy hair. This is probably only a variety of the golden vulture.

The **GOLDEN VULTURE** is larger than the golden eagle, being four feet eight inches long. The body is black above, and reddish beneath; the quills and tail brown.

The **CINEREOUS**, or *great vulture*, is rather less than the last species, but larger than the common eagle. The head and neck are covered with brown down, and beneath the throat there is a kind of beard. The body is brown, and the legs are feathered down to the toes.

The **HARE VULTURE** is smaller than all the preceding. It is of a shining reddish black; the breast inclining to yellow. It is found in many parts of Europe and Asia.

Of those birds which may be accounted foreign, that which is called the **KING VULTURE** greatly demands pre-eminence. It is the size of a hen turkey. The head and neck are entirely bare of feathers, but a fillet of blackish down encompasses the head. At the bottom of the neck, just above the shoulders, there is a ruff of ash-coloured feathers. The body is a reddish brown, the belly white, with a tinge of yellow, and the quills are black. It is a native of South America and the West Indies.

The **CARRION VULTURE**, or *turkey buzzard*, is the next in order and consequence. They are found in vast flocks in all parts of America, where they are of great utility in destroying snakes and vermin, and devouring the dead and putrid carcasses. It is about the size of a turkey. The whole plumage is a brownish black, with a purple and greenish gloss in different directions.

The **EGYPTIAN VULTURE** is much of the same nature, but is not above the size of a kite.

But of all the birds of this genus, the **SECRETARY** is the most elegant. It is full three feet in height, the bill black, like that of an eagle. On the upper eye-lid there are large bristles, like eye-lashes, and from the back of the head springs a beautiful pendant crest. The body in general is ash-coloured, and the tips of the wings are black. It is an inhabitant of all the southern parts of Africa.



### THE FALCON.

OF many of the ancient falcons used for the purpose of falconry, which is now so much disused among us, we know only the names. Of those in use at present, both here and in other countries, are the gyr-falcon, the falcon, the lanner, the sacre, the hobby, the kestrel, and the merlin. These are called the long-winged hawks, to distinguish them from the goss-hawk, the sparrow-hawk, the kite, and the buzzard, that are of shorter wing, and either too slow, too cowardly, too indolent, or too obstinate to be serviceable in contributing to the pleasures of the field.

The **GYR-FALCON** leads in this bold train. In size he exceeds all other falcons, for he approaches nearly



to the magnitude of the eagle. The top of the head is flat, of an ash-colour, with a strong, thick, short, and blue beak. The feathers of the beak and wings are marked with black spots, in the shape of a heart; he is a courageous and fierce bird, nor fears even the eagle himself; but he chiefly flies at the stork, the heron, and the crane. He is mostly found in the colder regions of the north, but loses neither his strength nor his courage when brought into the milder climates.

The **FALCON**, properly so called, is the second in magnitude and fame. There are some varieties in this bird, but there seems to be only two that claim distinction, viz.:—

The **FALCON-GENTIL** and the **PEREGRINE FALCON**; both are much less than the gyr, and somewhat about the size of a raven. Next to these is the **LANNER**; then follow the **SACRE**, the **HOBBY**, the **KESTRIL**, and last,

The **MERLIN**, which though the smallest of all the hawk or falcon kind, and not much larger than a thrush, yet displays a degree of courage that renders him formidable even to birds ten times his size. He has often been known to kill a partridge or a quail at a single pounce.

The courage of these creatures in general was such, that no bird not very much above their own size, could terrify them; their swiftness so great, that scarce any bird could escape them; and their docility so remarkable, that they obeyed not only the commands but the signs of their master. They remained quietly perched upon his hand till their game was flushed, or else kept hovering round his head without ever leaving him but when he gave permission.

The common falcon is a bird of such spirit, that he keeps all birds in awe and in subjection to his prow-

ess. When he is seen flying wild, the birds of every kind, that seem entirely to disregard the kite or the sparrow-hawk, fly with screams at his most distant appearance.

In order to train up a falcon, the master begins by clapping straps upon his legs, which are called jesses, to which is fastened a ring with the owner's name, by which, in case he should be lost, the finder may know where to bring him back. To these also are added little bells, which serve to mark the place where he is seen, if lost in the chase. He is always carried on the hand, and is obliged to be kept without sleeping. If he be stubborn and attempts to bite, his head is plunged into cold water. Thus by hunger, watching, and fatigue, he is constrained to have his head covered by a hood or cowl, which covers his eyes. This troublesome employment continues often for three days and nights without ceasing. It rarely happens but at the end of that time his necessities, and the privation of light, make him lose all idea of liberty, and bring down his natural wildness. His master judges of his being tamed when he permits his head to be covered without resistance, and when uncovered he seizes the meat before him contentedly. The repetition of these lessons by degrees ensures success. His wants being the chief principle of his dependence, it is endeavoured to increase his appetite by giving him little balls of flannel, which he greedily swallows. Having thus excited the appetite, care is taken to satisfy it; and thus gratitude attaches the bird to the man who but just before had been his tormentor.

As soon as the first lessons have succeeded, he is carried out upon some green, his head is uncovered, and, by flattering him with food at different times, he is taught to jump on the hand, and to continue there.

When confirmed in this habit, it is then thought time to make him acquainted with the lure. This lure is only a thing stuffed like the bird the falcon is designed to pursue, such as an heron, a pigeon, or a quail, and on this lure they are served with food. It is necessary that the bird should not only be acquainted with this, but fond of it, and delicate in his food when shewn it. The use of this lure is to flatter him back when he has flown in the air; it is also requisite to assist it by the voice and signs of his master. When this has succeeded, he is carried into the open fields, but still kept fast by a string which is about twenty yards long. The next day the lure is shewn him at a greater distance, till he comes at last to fly to it at the utmost length of his string. After having shewn him the game itself alive, but tame and disabled, he is let loose and carried into the field to pursue that which is wild. At this he flies with avidity, and when he has seized or killed it, he is brought back by the voice and the lure.

The KITE may be distinguished from all the rest of its tribe by its forked tail; as well as by its slow, equable, and almost incessant motion on the wing. Its length is twenty-seven inches, and the expansion of the wings about five feet. It subsists principally on accidental carnage, and is an insidious thief rather than a bold robber. It prowls about in search of prey; and when it meets with a stray chicken or unsuspecting bird, pounces upon it at once.



### THE COMMON BUZZARD.

The BUZZARD is the most common of all birds of the hawk kind in England. It is about twenty-two inches long, and the full expansion of its wings upwards of fifty. It breeds in extensive woods, and lays two or three eggs. The back and wings are brown, the belly is yellowish spotted with brown, and the tail is a light brown tanned with black.

The buzzard is very sluggish and inactive; remaining perched on the same bough for the greater part of the day, and always near the same place. It feeds on birds, rabbits, moles, and mice; and, when impelled by hunger, will make a meal on frogs, or any sort of insects.



### THE GOSSHAWK.

The GOSS-HAWK is larger than the common buzzard, and of a more elegant conformation. The skin at the base of the bill has a yellowish green colour; over each eye is a long white line, and on each side of the neck a tract of broken white. The head and hind part of the neck, the back and the wings, are of a deep brown colour; the breast and belly are white, beautifully marked with transverse bands of black; the tail is long, and of a brownish ash colour, marked with dusky bars.

This bird is extremely destructive to game, darting through the woods on its prey with vast impetuosity; but, if the object of its pursuit eludes its first attack, it almost immediately gives up the chase.

Of the buzzard, kite, and falcon kind, above seventy different species, foreign and domestic, have been enumerated. Of all these the nature and properties are nearly the same, and the description we have given of the gyr-falcon will apply to most of the hawk species, only differing in size and other minute particulars.

## THE SHRIKE, OR BUTCHER BIRD.

BEFORE we conclude this short history of rapacious birds that prey by day, it may not be improper to describe a tribe of smaller birds, that seem from their size rather to be classed with the harmless order of the sparrow kind; but which, from their crooked beak, courage, and appetite for slaughter, certainly deserve a place here.

The LESSER BUTCHER BIRD is not much above the size of a lark; that of the smaller species is not so big as a sparrow; yet, diminutive as these little animals are, they make themselves formidable to birds of four times their dimensions.

The GREATER BUTCHER BIRD is sometimes nearly a foot in length; its bill is black, an inch long, and hooked at the extremity. The crown of the head, the back, and the coverts of the wings, are cinereous; the quill feathers are black, with a broad white bar in the middle of each; the throat, breast, and belly are of a dirty white, and the legs are black.

The toes, which are formed differently from those of other birds of prey, seem to make it the connecting link between the carnivorous, and granivorous, and the insectivorous kinds. Accordingly, its habits correspond exactly with its formation, as it feeds indiscriminately on either flesh or insects; but it prefers the former, and will attack birds much larger than itself with astonishing spirit, and often with success.

It is easy to distinguish these birds at a distance, not only from their going in companies, but also from their manner of flying, which is always up and down, seldom direct or side-ways. They are very affectionate to their young; and the whole brood, even after

they are able to provide for themselves, live in one family. Peace and subordination are preserved among them, and they usually eat and hunt together.

There are above forty different kinds, foreign and domestic, of these birds; but the *great cinereous butcher bird* is the least known among us.

The RED-BACKED BUTCHER BIRD is in length seven inches and a half, and is of a reddish brown, with a black tail. It migrates in autumn, and does not return till spring.

The WOODCHAT resembles the former, except in the colour of the beak, which is brown, and not red, as in the other.

The MALABAR SHRIKE is conspicuous among the foreign birds of this genus, for the singularity and beauty of its form. It is the size of a missel thrush. The general colour of its plumage is black, though on the back it is glossed with a fine shade of blue. Its head is crested, and the two outer feathers of the tail are three times the length of the others, and have the shaft quite naked for about six inches.

## THE OWL.

ALL birds of the owl kind have one common mark by which they are distinguished from others; their eyes, like those of tigers and cats, are formed for seeing better in the dusk than in the broad glare of sunshine. The pupil, in fact, is capable of opening very wide, or shutting very close; and, by contracting it, the brighter light of the day, which would act too powerfully upon the sensibility of the eye, is excluded; while, by dilating the pupil, the animal takes in the more faint rays of the night, and thereby is enabled to spy its prey, and catch it with greater facility in the dark.

But though owls are dazzled by too bright a daylight, yet they do not see best in the darkest nights, as some have been apt to imagine.



The nights when the moon shines are the times of their most successful plunder; for when it is wholly dark, they are less qualified for seeing and pursuing their prey: except, therefore, by moonlight, they contract the hours of their chase, and if they come out at the approach of dusk in the evening, they return before it is totally dark, and then rise by twilight the next morning to pursue their game, and to return in like manner before broad daylight.

Yet the faculty of seeing by night, or of being entirely dazzled by day, is not alike in every species of these nocturnal birds. The common white, or barn owl, for instance, sees with such acuteness in the dark, that it perceives the smallest mouse that peeps from its hole: on the contrary, the brown horned owl is often seen to prowl along the hedges by day, like the sparrow-hawk, and sometimes with good success.





### THE HORNED OWL.

The birds of the owl kind may be divided into two sorts; those that have horns and those without. These horns are nothing more than a few feathers that stand up on each side of the head over the ear, and give this animal a kind of horned appearance. Of this kind,

The **HORNED OWL** appears very large, but it is in a great measure owing to the fulness of its plumage. Its horns are composed of six feathers each, variegated with yellow and black. The breast and belly are of a dull yellow, marked with slender brown spots; the back and coverts of the wings are varied with deep brown and yellow. This bird usually breeds in hollow trees, caverns, or ruined turrets. It is common in the north of England, in Cheshire, and in Wales.

Next to this is the LONG-EARED OWL. It is in length fourteen inches and a half. The eared tufts consist of six feathers. It is a reddish brown. The legs are feathered down to the toes. These birds are seldom at the trouble of making a nest for themselves, but generally take possession of an old magpie's or a buzzard's nest. They lay four or five eggs. The young are white at first, but come to their colour in sixteen days. They are common in England and France.

The SHORT-EARED OWL is only fourteen inches long. It has one feather half an inch longer than the rest on each side of the head, which it can erect at pleasure. Its back is brown, and its belly a pale yellow, streaked with brown. The legs are feathered to the toes. It may be accounted a bird of passage, visiting us in October, and retiring in spring.

The SCOPS is still smaller than the last mentioned bird, being only seven or eight inches long. In France it appears as a bird of passage; but it is doubtful whether it ever visits England.

To these succeed the tribe without horns. The HOWLET, or *aluco*, which is the largest of this kind, has dusky plumes, and black eyes.

The WHITE OWL, commonly called the barn owl, is the best known of any. It may be considered as almost domestic, as it inhabits barns and out-buildings the greatest part of the year, and is extremely useful in clearing them of vermin. At the season of incubation, however, it takes up its residence in the woods. It seldom hoots, but snores and hisses.

The BROWN OWL is rather less than the former, with brown plumage and a brown beak.

The IVY OWL, commonly called the screech-owl, has had ascribed to it, by superstition, the power of foreboding death or calamity by its cries. The an-

cients believed likewise that it sucked the blood of young children ; and hence it has been dreaded or detested in all ages, probably without any just cause.

Its screams are truly alarming ; and as it frequently approaches windows where there is a light in the room, a circumstance very common in apartments of the sick at all hours of the night, its voice is equally appalling to the superstitious invalid and his friends.

Of these owls, which may in France and England be termed foreign, nearly thirty different species have been enumerated. The **SIBERIAN EARED OWL** is a most beautiful little bird, about the size of a house sparrow, that is, scarcely six inches in length. The bill is brown, the eared feathers one inch in height. The whole body is ash-coloured, and delicately powdered, and variegated with brown and white spots.

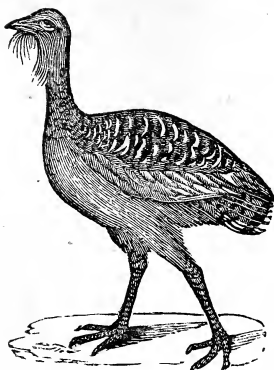
All the species of this bird, however they may differ in their size and plumage, agree in their general characteristics. The cavern of a rock, the darkest part of a hollow tree, the battlements of a dilapidated castle, or some obscure hole in a farmer's out-house are the places where these birds are usually found. Here they remain till the approach of evening, when they sally forth in quest of prey.

## CHAPTER II.

## BIRDS OF THE GALLINACEOUS, OR POULTRY ORDER.

The Bustard—the *Little Bustard*—the *Houkara* and the *Rhaad*. The Cock. The Turkey—the *Horned Turkey*—the *Guan*, *Yacou*, and *Morail Turkeys*. The Pintada. The Grouse—the *Cock of the Wood*—the *black*, *red*, *hazel*, *pintailed*, *ptarmigan*, and *ruffed Grouse*. The Peacock. The Pheasant—the *golden*, *argus*, *superb*, and *impeyan Pheasant*. The Curassow—*Cushewbird*. The Partridge—the *Francolin*—the *Quail*—the *Crested Quail*, &c. The Columbine Order—the *Tame Pigeon*—the *Ring Dove*—the *Crown Pigeon*—the *Turtle Dove*.

It is obvious that this order of birds is the very opposite of that which we have described in the preceding chapter. They are without talons, or the hooked bills of the rapacious kind ; but there is another particular of still more importance in which they materially differ. In the rapacious order, which feed upon flesh, the digestion is carried on by means of a liquid in the stomach, which dissolves the food. In this which feeds chiefly upon grain, the gizzard is the principal instrument which grinds and reduces the grain to a pulp. This fact is decisively proved by an easy experiment. If a grain of corn be enclosed in a tube or a globe of metal which is strong enough to resist the action of the gizzard, it will pass through the body of the fowl, the grain a little swelled, but completely unaltered for any of the purposes of digestion or nourishment.



### THE BUSTARD

Is the largest land-bird that is a native of Europe. It was once much more numerous than it is at present; but the increased cultivation of the country, and the extreme delicacy of its flesh, has greatly thinned the species; so that a time may come when it may be doubted whether ever so large a bird was bred among us. It inhabits only the open and extensive plain, where its food lies in abundance, and where he may see his enemies at a distance.

The weight of this bird varies considerably; some have been found of not more than ten pounds, while others have been found of twenty-seven and even thirty. The bustard is distinguished from the ostrich, the touyou, the cassowary, and the dodo, by its wings, which, although disproportioned to the size of its body, yet serve to elevate it in the air, and en-

able it to fly, though with some difficulty; they are generally about four feet from the tip of one to the other. The neck is a foot long, and the legs a foot and a half. The head and neck of the male are ash-coloured; the back is barred transversely with black, bright, and rust colour. The greater quill-feathers are black; the belly white; and the tail, which consists of twenty feathers, is marked with broad black bars.

The bustard (according to Plutarch) is found in Lybia, in the environs of Alexandria, in Syria, in Greece, in Spain, in France, in the plains of Poitou and Champagne; they are frequently found in flocks of fifty or more in the extensive downs of Salisbury-plain, in the heaths of Sussex and Cambridgeshire, the Dorsetshire uplands, and as far as East Lothian, in Scotland.

Though these birds are seldom shot by the gun, they are sometimes run down by grey-hounds. As they are voracious and greedy, they often feed themselves so very fat, that they are unable to fly without great preparation. When the grey-hound, therefore, comes within a certain distance, the bustard runs off flapping its wings, and endeavouring to gather air enough under them to rise; in the meantime the enemy approaches nearer, till it is too late even to think of obtaining safety by flight; for just at the rise there is always time lost, and of this the bird is sensible; it continues, therefore, on the foot till it is taken.

As there are few places where they can at once find proper food and security, so they generally continue near their old haunts, seldom wandering above twenty or thirty miles from home. As their food is replete with moisture, it enables them to live upon these dry plains, where there are scarcely any springs of water,

a long time without drinking. Besides this, nature has given the males an admirable magazine for their security against thirst. This is a pouch, the entrance of which lies immediately under the tongue, and capable of holding near seven quarts of water. This is probably filled upon proper occasions, to supply the hen when sitting, or the young before they can fly.

They make no nest, but only scrape a hole in the earth, and sometimes line it with a little long grass or straw. There they lay two eggs only, almost the size of a goose's egg, of a pale olive brown, marked with spots of a darker colour.

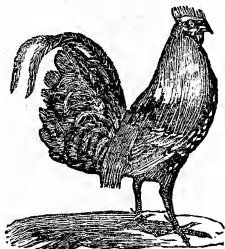
The **LITTLE BUSTARD** differs only from the preceding in being of a smaller size, being not larger than a pheasant, or about seventeen inches long. This species is found in many parts of Europe. It is, however, by no means common in France, and has only been met with three or four times in England.

There are six or seven species of foreign birds of this kind, two or three of which, particularly the **BOUBARA** and the **RHAAD**, both African birds, are crested, and different from ours by some varieties in their plumage.

## THE COCK.

**THIS** bird, though perhaps the most common of all, is by no means sufficiently known, except to those who have made the productions of nature their peculiar study. The variety in this race of animals is very great, so much so, indeed, that even the naturalist finds it difficult to point out its distinctive characters. If we take for the mark of the genus its four toes, what then becomes of the peculiar species which has five on each foot? If the erect and peculiar position of the tail be assumed, there is a species wholly destitute of this character. If we would say that the

cock is only feathered to the lower joint of the leg, there are some breeds which are feathered even to



the toes, and that of Japan has feathers to the very nails. In fine, if we would class him among granivorous birds, we must allow some latitude even in this, since he devours greedily not only earth-worms, but in many cases both fish and flesh.

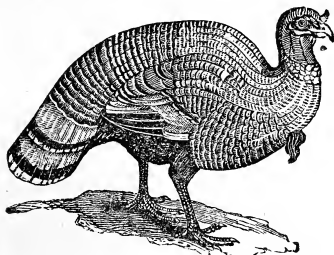
A hen seldom clutches a brood more than once a year; but she will lay annually upwards of two hundred eggs when well supplied with food and water. It matters not whether she be trodden by the cock or not, she will continue to lay; although the eggs of of this kind, can never, by hatching, be brought to produce a living animal.

The hen makes her nest without care, if left to herself; a hole scratched in the earth, among a few bushes, is the only preparation she makes for hatching. The hen would seldom lay above twenty eggs in the same nest, without attempting to hatch them, if left entirely to herself. When she sits, she care-



fully turns her eggs, and even removes them to different situations; till at length, in about three weeks, the young brood begin to show signs of bursting their confinement.

Ten or twelve chickens are the greatest number that a good hen can rear and clutch at a time; but as this bears no proportion to the number of her eggs, schemes have been imagined to clutch all the eggs of an hen, and thus turn her produce to the greatest advantage. The contrivance we mean, is the artificial method of hatching chickens in stoves, as is practised at Grand Cairo, where they thus produce six or seven thousand chickens at a time. But it is otherwise in our cold and unequal climate; the little animals may, without much difficulty, be hatched from the shell; but they almost all perish when excluded.



### THE TURKEY,

WHICH is now perfectly naturalized among us, was unknown before the discovery of America, to which quarter of the world it is indigenous. It was first

imported into France in the reign of Francis I., and into England under Henry VIII.

The young of the turkey in this country are among the tenderest of birds, yet in their wild state, they are capable of enduring a Canadian winter of nine months. In their natural forests they are much larger, as well as more beautiful, than in their state of domestic captivity: their plumage being grey, bordered at the edges with a bright gold colour.

The hunting of this bird constitutes a principal diversion of the American Indian, and its flesh greatly contributes to the support of his family.

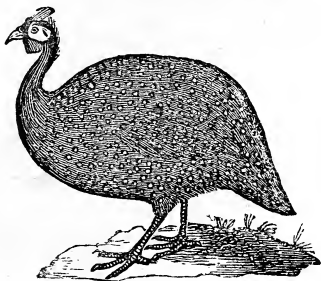
Turkeys are furious among themselves, but extremely weak and timid among animals of a different species. Even the common cock generally makes the turkey keep his distance; yet the latter is insolent and vain, and even when baffled, returns to his females, strutting in all the pride of victory. The female lays about eighteen or twenty eggs, and is assiduous in providing her young with insects, which they prefer to all other food.

Besides the wild turkeys of America, there are a few foreign birds of this genus which deserve notice. The most singular of these is the **HORNED TURKEY** of Bengal. It is not quite so large as our turkey, which it resembles in most respects, except that the loose flap, which hangs down its throat, is blue, and not red. But its most remarkable feature consists in a fleshy blue, callous substance, like horn, which springs behind each eye, and gives it the full effect of a horned animal.

The **GUAN TURKEY** is a native of Brazil. It is not larger than a common turkey; the top of the head is furnished with long feathers, which the bird can erect as a crest at pleasure.

The **YACOU** and **MORAIL TURKEYS**, the former of

which is a native of Cayenne, and the latter found in the woods of Guinea, are also crested. Their plumage is more splendid than that of ours



THE GUINEA-HEN,

IN some measure unites the characteristics of the pheasant and the turkey; having the fine delicate shape of the one, and the bare head of the other.

These birds are partially known in a domestic state all over Europe, but are most common on the coasts of the Mediterranean. Africa appears to be their native country; and they were probably introduced into this country from Guinea.

The Guinea-hen, or as it is frequently called, the pintada, was imported into the new world, in 1508, from Guinea. The Spaniards never attempted to render it domestic; and it is now multiplied so prodigiously, as to stock the savannahs, and otherwise to appear like an indigenous animal.

There is a species of this bird with a very beauti-

ful crest. There are also some other varieties which it would be tedious to describe.



### THE GROUSE.

THIS genus of birds comprehends about seventeen species, foreign and domestic, all of which are distinguishable from other birds of the poultry order, by a naked scarlet skin above each eye. They are not so numerous at present in any part of Europe, as we have reason to believe they once were. The barren heaths and piny forests are their natural retreats, and since cultivation has increased in these countries, they are only to be found on such extensive wastes as the moors of Westmoreland, and the mountainous districts in the most northern parts of Great Britain.

The WOOD GROUSE, or *cock of the wood*, is the first of this genus in order and consequence. It is about the size of a turkey, and sometimes weighs fourteen pounds; the female is much less, and the sexes differ likewise much in colour. The head and neck are ash-colour crossed with black lines, the body and wings chesnut brown, and the breast of a very

glossy blackish green. The legs are strong, and covered with brown feathers. The plumage of the female differs in being red about the throat, and having the head, neck, and back, crossed with red and black bars; the belly barred with orange and black, with the tips of the feathers white, as are also the tips of the shoulders.

The cock of the woods, when in the forest, attaches himself principally to the oak and the pine-tree; the cones of the latter serving for his food, and the boughs for an habitation. He feeds also upon ants' eggs, which seem a high delicacy to all birds of the poultry kind; cranberries are likewise often found in his crop.

The female lays her eggs in a dry mossy ground; and when she leaves them in quest of food, carefully covers them. As soon as the young ones are hatched, they run after their mother with great agility, though sometimes they are not entirely disengaged from the shell. They soon learn to eat ant's eggs, mountain berries, and other tender food.

The brood keep together till the ensuing spring, when they begin to look upon each other as rivals; contests ensue, and, in conclusion, the victor carries off as many females as he pleases.

The BLACK GROUSE, or *black cock*, is much more common. It is found in many parts of Europe, and in most of the moors of the north of England. Its name almost furnishes its description, since the whole body is black; but its most remarkable characteristic is its tail, which is forked. These birds never pair, but in spring the male ascends some eminence, where he crows and claps his wings, and on this signal the female resorts to him. The hen seldom lays more than six or seven eggs; and like the female of the preceding species, covers them up when she leaves

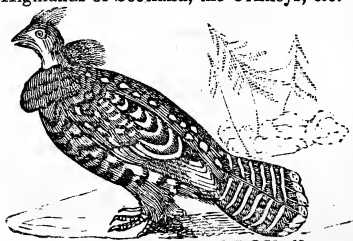
her nest in search of food. A full-grown black grouse will weigh nearly four pounds, and is in length twenty-four inches. There is a variety of this species with a plain tail.

The RED GROUSE, or *moor-cock*, are also plentiful in those parts where the black grouse is to be found. It is rather smaller than the preceding species, it being only about fifteen inches and a half in length. The throat and back are reddish, with a black spot on each feather. The breast and belly are purplish brown, and the legs are covered with soft whitish feathers.

The HAZEL GROUSE is a smaller bird, and appears of the same species as the former. It is a native of Germany.

The PIN-TAILED GROUSE, so called from its narrow forked tail, is also of the same species with our red grouse. It is the size of a partridge, and is found in France, Spain, Barbary, &c.

The PTARMIGAN GROUSE is in length about fifteen inches. The bill is black, and the plumage is a pale ash-colour, elegantly mottled with dusky spots. It is found in all the northern parts of Europe, and in the Highlands of Scotland, the Orkneys, &c.



THE RUFFED GROUSE.

There is a species of the grouse in North America which is called the **RUFFED GROUSE**, and which is distinguished by a large ruff on the hind part of the neck, to be raised or depressed at pleasure; the head is also adorned with a crest.



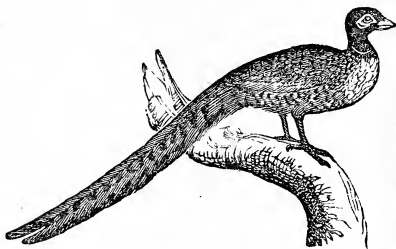
### THE PEACOCK.

It is proverbial in Italy, that the peacock has the plumage of an angel, the voice of a demon, and the stomach of a thief. Our first peacocks were brought from the East Indies; and we are assured that they are still found in vast flocks, in a wild state, in the islands of Java and Ceylon. The peacock has in some countries been esteemed as an article of luxury; but whatever there may be of delicacy in the flesh of a young peacock, it is certain an old one is very indifferent eating.

The peacock feeds on corn, but its favourite food is barley. However, it does not reject insects and tender plants; and so capricious are its appetites, that it is not easily restrained from the most unaccountable depredations on the dwelling, the farm, or the garden. Thus its beauty ill recompenses for the

mischievous occasions ; and many of the more homely looking fowls are very deservedly preferred before it.

The pea-hen seldom lays above five or six eggs in this climate before she sits. Aristotle describes her as laying twelve ; and it is probable in her native climate she may be thus prolific, for they are numerous beyond expression in the forests where they breed naturally. This bird lives about twenty years, and not till its third year has it that beautiful plumage that adorns the tail.



### THE PHEASANT.

THE name of this bird sufficiently indicates its origin. The pheasant is the bird of Phasis, a river of Colchis, in Asia Minor, whence they were first introduced into Europe.

Next to the peacock they are the most beautiful of birds, as well for the vivid colour of their plumes, as for their delightful mixtures and varieties. It is reported that Croesus, king of Lydia, when seated upon his throne in all the pomp of eastern splendour, asked Solon if he had ever seen any thing so magnificent.



The Greek philosopher, unawed by majesty, and priding himself on his native freedom and simplicity, replied, that after having seen the plumage of the pheasant, he could be dazzled by no other finery.

Nothing can satisfy the eye with a greater variety and richness of ornament than this beautiful creature. The iris of the eye is yellow; and the eyes themselves are surrounded with a scarlet colour, sprinkled with small specks of black. In some the top of the head is of a shining blue, and the head itself, as well as the upper part of the neck, appears sometimes blue, and sometimes green, as it is differently placed to the eye of the spectator. The feathers of the breast, the shoulders, the middle of the back, and the sides under the wings, have a blackish ground, with edges tinged of an exquisite colour, which appears sometimes black, and sometimes purple, according to the different lights it is placed in; under the purple there is a transverse streak of gold colour. The tail, from the middle feathers to the root, is about eighteen inches long: the legs, the feet, and the toes, are of the colour of horn. There are black spurs on the legs, shorter than those of a cock; there is also a membrane that connects two of the toes together. The male is much more beautiful than the female.

In the woods the hen-pheasant lays from eighteen to twenty eggs in a season; but in a domestic state she seldom lays more than ten. Its flesh is considered as the greatest dainty.

The pheasant, when full grown, seems to feed indifferently on every thing that offers. It is even asserted by some, that such is the carnivorous disposition of this bird, that when several of them are put together in the same yard, if one of them happens to fall sick, or seems to be pining, all the rest will fall upon, kill, and devour it.

The **BASTARD PHEASANT** is of a mixed breed between the pheasant and the cock. The back is reddish, mottled with brown and white; the lower parts ash-coloured, spotted with brown.

The **TURKEY PHEASANT** is also a variety supposed to be produced between the turkey and the pheasant. It is like the former, of a mingled colour.

The foreign birds at present known of this genus, are about eight or ten in number. Among these the **GOLDEN PHEASANT OF CHINA** stands conspicuous for beauty. It is less than the common pheasant, not being more than thirty-three inches long. It has been known to propagate with our pheasants, and is a hardy bird.

The **ARGUS PHEASANT** is also a magnificent bird. It receives its name from the quills being marked with eyes resembling those in the peacock's train. It is about the size of a cock turkey.

The **SUPERB PHEASANT**, the predominant colour of which is green, is a native of China, as well as the former.

The **IMPEYAN PHEASANT** from Hindostan is larger than a common fowl. On the head is an erect crest of eighteen feathers, the longest of which is three inches and a half.

## THE TRUMPETER

Is a beautiful bird, which some naturalists class with the pheasant, while others make it a different genus. Its breast is of a fine glossy gilded green, though the general colour of the plumage is black. In other birds of this kind the colour varies a little, as the wings have a mixture of white, &c. The size is that of a large fowl.

This singular bird inhabits South America. It is a most familiar animal, as it will follow like a spaniel

the person that takes care of it. It is remarkable for the sound it produces. At first a shrill sound seems to proceed from the mouth, which is answered by a noise from the belly, like the cooing of a dove, during which time the belly seems much agitated. It will feed on bread, fish, or flesh, and it is accounted as pleasant food as the pheasant.

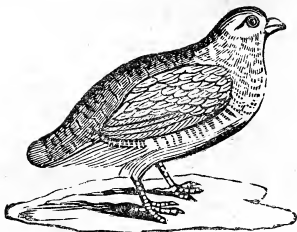
## THE CURASSOW

Is a bird which bears much resemblance to the pheasant, though it is considered by naturalists as a distinct genus. It is nearly as large as a hen turkey, and comprehends four or five species, with some varieties, but they are all foreign birds, and belong only to the warm climates of America. They are generally distinguished by a crest of feathers which curl at the ends. The usual colour of the plumage is black, but this varies in the different species.

Of this the general colour is reddish brown, the bill yellow with a brown tip, the sides of the head covered with black feathers, the neck encircled with alternate rings of black, and white, and the tail barred with white.

There is another species called the CUSHEW BIRD, from a large blue gibbosity, resembling a cushew nut, and as large as a pear, which is situated at the base of the forehead.

In Peru and in Mexico these birds are very numerous, both in a wild and a tame state. Their flesh is excellent.



### THE PARTRIDGE.

**THERE** are more than twenty species of this bird, foreign and domestic, but they may all be arranged under two divisions, the grey and the red. The red partridge is the largest of the two, and often perches upon the trees; the grey, which is the common partridge in England, is the most prolific, and always keeps on the ground.

The partridge is found in every country and climate; as well in the hyperborean regions as under the tropical circles. Wherever it resides, it seems to adapt itself to the nature of the climate. In Greenland it is brown in summer; but in winter it becomes white, and is clothed with a warm down beneath.

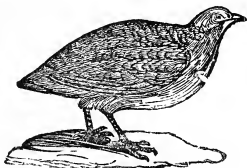
The manners and habits of these birds, in many respects, resemble those of the domestic poultry, but their cunning and instinct are much superior. Accustomed to hostile aggression, they practise several little arts of evasion for safety. Whenever, therefore, a dog or other formidable animal approaches their nest, the female uses every means to draw him away. She keeps just before him, pretends to be in-

capable of flying, just hops up, and then falls down before him, but never goes off so far as to discourage her pursuer. At length, when she has drawn him entirely away from her secret treasure, she at once takes wing and leaves him to gaze after her in despair.

After the danger is over, and the dog withdrawn, she then calls her young, who assemble at once at her cry, and follow where she leads them. There are generally from ten to fifteen in a covey; and, if unmolested, they will live from fifteen to seventeen years.

The **FRANCOLIN** is one of the most beautiful species of partridge. It is very common in Barbary, and is sometimes found in the South of Spain.

There is also a **BARE-NECKED PARTRIDGE**, and a species with a hackle like that of a cock.



### THE QUAIL.

**THIS** bird is much smaller than any of the former, being not more than half the size of the partridge. The feathers of the head are black; the feathers on the back are marked with lines of pale yellow, and the legs are of a pale hue.

In most of its habits the quail resembles the former tribes; but it is a bird of passage, however ill

adapted it may appear for extensive migration. It seeks a warmer climate when winter sets in, or at least shifts its quarters from one province to another.

The quail builds its nest on the ground ; and is much less prolific than the partridge, seldom producing more than six or seven young. It is easily caught by a call, which is formed to imitate the voice of the female.

Quail-fighting was a favourite amusement among the Athenians, but they abstained from eating the flesh, supposing that it fed upon the white hellebore. The flesh, however, is now considered a peculiar delicacy, while its courage is totally disregarded.

There are crested quails in South America, and their plumage varies in different parts of the world. Ten or twelve different species have been enumerated ; but the common quail is only known in France and England.

#### THE COLUMBINE ORDER.

#### THE PIGEON.

IN all its beautiful varieties, is said to derive its origin from the stock-dove. The domestic pigeon, which is itself the creature of art, has given rise to many elegant varieties, all distinguishable by names expressive of their several properties, as tumblers, carriers, jacobines, croppers, pouters, vents, turbits, &c. ; and bird-fanciers can multiply the families almost infinitely, by coupling a male and female of different sorts.

The dove-house pigeon breeds every month ; it lays two white eggs, which most usually produce one of different sexes. During the period of their incubation, which is fifteen days, the male and the female relieve each other, and their turns are regulated with great exactitude. The female usually sits from about four in the evening till nine next morning ; at which time she is superseded by the male, who diligently supplies her place till nearly the return of the same hour. If the female should prove negligent of her duty, the male will pursue and drive her to the nest ; while, on the other hand, should the male not return at the expected time, his mate will treat him with equal severity.

When the young are hatched, they require no food for the first three days, only wanting to be kept warm. After this the parents feed them for eight days, by discharging into their mouths whatever they have themselves been able to treasure up in their crops. This mode of feeding the young is peculiar to the family of pigeons ; and their crop is a pretty large receptacle for taking in an ample store of provisions. The males commonly supply the young females, and the females commonly perform the same office for the young males. At first the young are furnished with food considerably macerated ; but as they grow older the parents gradually diminish the trouble of the preparation.

The fecundity of this bird is so prodigious, that from a single pair nearly fifteen thousand may be produced in the space of four years. Thus they will repay the charge of providing them with appropriate dwellings, and occasional distributions of food.

There are many species of the wild pigeon differing from the stock-dove. The RING-DOVE is of the

number. This bird seems passionately fond of its native freedom ; for all attempts to render it domestic have hitherto proved fruitless ; though their eggs have been hatched by the tame pigeon in a dove-house, yet, as soon as they could fly they always betook themselves to the woods where they were first produced.

Among the foreign birds which belong to the pigeon species, there are none deserving of notice except the **LARGE CROWNED PIGEON OF THE EAST INDIES**. Though this bird is as large as a turkey, it evidently belongs to the pigeon species. It has the beak, the head, the legs, the form, the voice and manners of this species. It is a native of the Isle of Banda. There appears no distinction between the males and the females, and the latter do not lay in these cold climates.

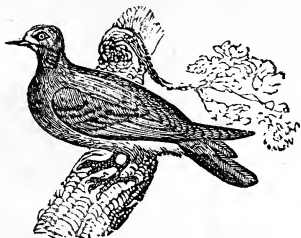
The **LESSER CROWNED PIGEON** is also a native of India. It is the size of a common pigeon. The head and neck of the bird are black ; the back, rump, and tail is of a deep green ; the breast and belly violet, and the crest a gilded red.

### THE TURTLE DOVE,

Is smaller, but a much shyer bird, than any of the former. It may easily be distinguished from the rest by the iris of the eye, which is of a fine yellow, and by a beautiful crimson circle that encompasses the eye-lids. These birds are noted for their fidelity ; and a pair being put into a cage, if one dies, the other will not survive it. The turtle-dove is a bird of passage, and few or none remain in our northern climates in winter. They fly in flocks when they come to breed here in summer, and delight in open mountainous, sandy countries. They build their nests in the midst of woods ; but may yet be tamed, and even



brought to propagate in dove-houses like the tame pigeon, and several varieties are produced in this artificial existence. They will even pair with pigeons, and thus produce a mixed one.



Among the foreign birds of this species, the most remarkable is the **GROUND TURTLE**, or *small turtle dove*, of St. Domingo. It is not above the size of the common crested lark, or a little better than six inches long. The upper parts of the body are ash-coloured, the lower parts reddish, spotted with brown. It is excellent eating, and on this account, and for its size, it has acquired the name of ortolan, being nearly about the same weight as the European ortolan.

## CHAPTER III.

## BIRDS OF THE PIE ORDER.

The Raven—The Carrion Crow—The Royston Crow—The Jackdaw—The Cornish Chough—The Hottentot, Bald, Variegated and white-crested Crows—The Magpie—The Jay—The Chinese and other Jays—The Nutcracker—The Roller—The Hoopoe—The Promerops—The King-fisher—The Cuckoo—The Woodpecker—The Oriole—The Nuthatch—The Bee-eater—The Wryneck—The Creeper—The Toucan—The Motmot—The Hornbill—The rhinoceros, helmet, and pied Hornbills—The Parrot—The Macaw, the Lory, the Paroquet, and Cockatoo—The Ani—The Wattle Bird—The Crackle—The Bird of Paradise—The King and magnificent Birds of Paradise—The Beef-eater—The Curacui—The Barbet—The Jacamar—The Tody—The Humming-Bird.



## THE RAVEN.

THE RAVEN is the largest of the crow kind, and distinguished from the rest not only by its size, but

also by its bill, which is more hooked. It is in length upwards of two feet, and the expansion of its wings more than four. The whole colour is of a fine glossy black, tinged with blue, except on the belly, where it is dusky.

This bird is a native of every region, and appears to be little influenced by climate. It can sustain, with equal indifference, the heat of the equator and the cold at the poles.

In a state of nature the raven is a most voracious plunderer. It preys equally on the living and the dead; and after having sufficiently crammed itself, flies to communicate tidings of its spoil to its companions. Its scent is most exquisite, by which it can distinguish carrion at an immense distance.

The raven generally builds its nest in a tree, and lays five or six eggs at a time. It prefers the most unfrequented places, and is not fond of the vicinity of towns. A remarkable superstition has prevailed in favour of the raven, because it is the bird that fed the prophet Elijah in the wilderness. The ancient Romans also held them in great veneration as birds of omen. One that had been kept in the temple of Castor, flew down into the shop of a tailor, who took much delight in the visits of his new acquaintance, and even taught it to pronounce the names of the emperor Tiberius, and the whole royal family. The tailor was beginning to grow rich by those who came to see this wonderful raven, when an envious neighbour killed the bird, and thus deprived the tailor of his hopes of future fortune. The Romans, however, interfered; they punished the man who offered the injury, and gave the raven a magnificent funeral.

In longevity the raven equals any of the feathered race. Some of them have been known to live nearly a hundred years. These animals, indeed, seem

possessed of those qualities that generally produce longevity—a good appetite and great exercise.

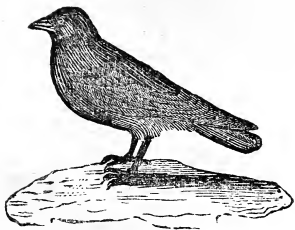
The **CARRION CROW** resembles the raven in its appetite, laying, and manner of bringing up its young. It only differs in being less docile and less favoured by mankind.



### THE ROOK.

THE ROOK leads the way to another, but more harmless train, that have no carnivorous appetites, but only feed upon insects and corn.

The **ROYSTON CROW** is about the size of the two former. The breast, belly, back, and upper part of the neck being of a pale ash-colour; the head and wings glossed over with a fine blue. He is a bird of passage, visiting us in the beginning of winter, and leaving us in the spring. He breeds, however, in different parts of this kingdom; and in Ireland his nest is common.



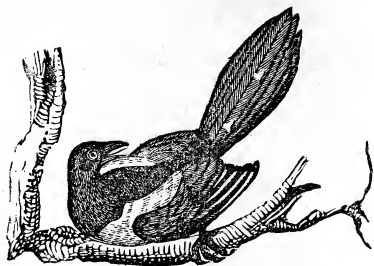
### THE JACKDAW.

**THE JACKDAW** is black like the former, but ash-coloured on the breast and belly. He is about the size of a pigeon, and is very docile and loquacious. His head is large in proportion to his body, which argues him ingenious and crafty. He builds in old castles and steeples, and high rocks, laying five or six eggs in a season.

The **CORNISH CHOUGH** is like a jackdaw, but larger, and almost the size of a crow. It is only seen along the western coast of England.

There are several foreign birds which bear a near relation to the crow. The **HOTTENTOT CROW**, of the Cape of Good Hope, is remarkable for two bunches of stiff hair, about three inches long, which spring out from the corners of his mouth, and which have the full effect of a pair of whiskers.

The **BALD CROW**, which inhabits Cayenne, is as singular for an opposite quality; which is, that the fore part of the head, as far as the crown, is entirely bare of feathers.



### THE MAGPIE.

This bird lives not only on insects, but also on such animals of the feathered race as it is able to overcome. It has even the insolence to tease the largest quadrupeds, when it is sure that it can escape punishment. It often perches itself on the back of a sheep or an ox, picking out the insects that lodge there, chattering and tormenting the animal all the while; and, on any symptom of displeasure from the sufferer, stretches out its neck in a menacing posture.

No food seems to come amiss to the magpie; it shares with ravens in their carrion, with rooks in their grain, and with the cuckoo in their eggs; but it seems actuated by a foresight not usual with gluttons; for when it is satisfied for the present, it reserves the remainder of the feast till a future occasion. In a tame state, it will hide its food when it has finished a repast, and, after a time, return to the secret hoard with renewed appetite and vociferation. It is some-

times taught to speak, but its articulations are too shrill and sharp to be a perfect imitation to the human voice.

There are some foreign birds of this species, but they are not worthy of notice.



### THE COMMON JAY

To this tribe may also be referred the JAY, one of the most beautiful of British birds. The forehead is white, streaked with black; the head covered with very long feathers, which it can erect as a crest at pleasure; the whole neck, breast, and belly, are of a faint purple dashed with grey; the wings are barred with blue, black, and white; the tail is black, and the feet of a pale brown. Like the magpie, it feeds upon fruits, will kill small birds, and is extremely docile.

Many of the foreign birds of this kind are very beautiful. The CHINESE JAY is of two kinds, the red-billed, and that with a bluish bill. They are both elegant birds, their plumage being finely varied with patches of black, particularly about the head and throat. Those of Peru are of a tender green, which,

by insensible shades, assume a bluish cast in different parts of the body.

## THE NUTCRACKER

Is by some naturalists considered as a distinct genus, and by others it is classed with the crow. In its manner it resembles the jay, laying up a store of nuts and acorns, and inhabiting the pine-forests like that bird. The colour is a rusty brown, marked with triangular white spots. It is rarely seen in England, but is very common in Germany.

## THE HOOPOE.

Of this bird there is only one species known to the Europeans, which is diffused over the whole of the Old Continent. It weighs about twelve ounces, is twelve inches in length, and the extent of its wings is nineteen inches. The bill is long and black. The neck is a pale reddish brown; the belly and breast white; the lesser coverts of the wing light brown; the back, scapulars, and wings crossed with black and white, the rump white, and the tail white, marked with black in the form of a crescent. But the distinguishing feature is a beautiful crest of about two inches high, which is of a pale orange tipped with black. The food of this bird is insects.

The *PROMEROPS* is generally considered as a species of hoopoe. It is found in the southern parts of Africa and India, and in South America.

The body is the size of a pigeon, though the whole bird, including the tail, measures nearly four feet.





## THE KING FISHER

Is a beautiful and extraordinary bird. It is not much larger than the swallow; the legs are disproportionably small, and the bill disproportionably long. The crown of the head and the coverts of the wings are of a deep blackish green, spotted with bright azure; the back and tail are of the most resplendent azure: the whole under the side of the body is orange-coloured; a broad mark of the same passes from the bill beyond the eyes; beyond that is a large white spot; the tail is short, and consists of twelve feathers of a rich deep blue; the feet are of a reddish yellow, and the three joints of the outmost toe adhere to the middle toe, while the inner toe adheres only by one.

This bird frequents the banks of rivers; and feeds on fishes, which it catches in surprising numbers. It is almost constantly in action, and takes its prey by balancing itself at a certain distance above the water for a considerable space, then darting into the deep, and seizing the fish with inevitable certainty.

This bird lays from five to nine eggs, and builds its nest by the river side, in a hole which it burrows

out itself, or in the deserted hole of a rat. During the season of incubation, the male brings the female such large supplies of fish, that she is generally fatter at that time than any other. The young are hatched at the end of twenty days, but do not acquire the beauty of their plumage in perfection till after their first moulting season.

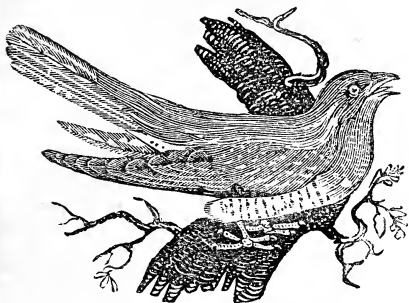
The ancients have had their fables, as well as the modern vulgar, concerning this bird. St. Ambrose tells us, with superstitious simplicity, that providence, to manifest his kindness, grants a perfect exemption from storms during the period which this bird requires to hatch her young. Even now it is an opinion generally received among the illiterate, that the flesh of the king-fisher will not corrupt, and that it will banish all vermin. The only truth that can be affirmed of this bird, when killed, is that its flesh is utterly unfit to be eaten; while its beautiful plumage preserves its lustre longer than that of any other bird we know.

Of this bird there are about thirty-six species, foreign and domestic.

## THE CUCKOO.

THE note of this bird is universally known; but its history is involved in much obscurity. Its bill and claws are smaller and weaker than those of other rapacious fowls. It has round and prominent nostrils on the surface of the bill, which alone distinguishes it from all other birds. The lower part of the body is of a yellowish colour, with black transverse lines under the throat, and on the top of the breast; the head, the upper part of the body, and the wings, are marked with tawny and black transparent stripes; and on the top of the head are a few

white spots. The legs are feathered down to the very feet.



The arrival of the cuckoo is considered as the har-binger of spring. Its note is so uniform that its name in every language is derived from it. It never makes a nest of its own, neither here nor in other countries, but deposits its eggs in the nest of some other bird, to whom it leaves the care of hatching them, and rearing the young. A water-wagtail, or even a hedge-sparrow, frequently officiates as nurse to the young cuckoo; and, if they happen to be hatched at the same time with its own offspring, they quickly force out the latter from the nest.

When the young cuckoo is sufficiently fledged, it soon quits its foster-parent, and pursues its native propensities. What becomes of the family in winter is as little known as the retreat of the swallow. Some suppose that they lie hid in hollow trees; and others that they pass into warmer climates. Which of these opinions is true is very uncertain, as there are no

facts related on either side which can be positively relied on. Willoughby tells us a curious story of some logs of wood being put into an oven to heat, when a cuckoo, being revived in this extraordinary manner, began to utter its note, to the great astonishment of those who were present.

The most probable opinion on this subject is, that as woodcocks and quails shift their habitation in winter, so also does the cuckoo; but to what country it retires, or whether it has ever been seen on its journey, are questions that we are wholly incapable of resolving.

Of this bird some naturalists have enumerated not less than forty species; differing not only in their colour, but in their size. Only two have been seen in Europe.

### THE ORIOLE.

THERE appears to be only one species of this bird known in Europe; this is by some termed the *golden Oriole*. It is the size of a thrush, and has been termed the golden thrush and the witwal. The head and the whole body of the male is of a rich yellow; the bill red; from that to the eye runs a black line; the wings black, marked with a bar of yellow, as are the ends of the feathers; the tail is black with the end yellow. The body of the female is a dull green, with dusky wings and tail. The nest of the bird is of the shape of a purse, and rests upon the outermost twigs of tall trees. It is very common in France, but has very rarely visited England.

America, however, is the country in which these birds are found in the greatest variety and the most perfect beauty. In Guiana and Brazil, the stranger is struck with the multitude of birds' nests hanging

at the extremity of the branches. In more civilised countries, a great part of the caution of the feathered tribe is to hide or defend their nests from the invasion of man, as he is their most dreaded enemy. But in these solitary forests, if the snake and the monkey can be guarded against, the bird has no other enemy to fear.

The nest is generally formed with a kind of moss, of a fibrous substance, and not unlike hair, which can be moulded into any form, and glued together. This the bird glues by some viscous substance gathered in the forest, or sews with the leaves of the banana to the extremest branch of a tree; then building downward, a nest is formed that depends, like a pouch, from the point of the branch; the hole to enter at is on the side; and all the interior parts are lined with the finer fibres of the same substance which compose the whole.

Such is the general contrivance of these hanging nests, which are made by some birds with still superior art. A little bird of the Grosbeak kind, in the Philippine islands, makes its nest in such a manner, that there is no opening but from the bottom. At the bottom the bird enters, and goes up through a funnel, like a chimney, till it comes to the real door of the nest, which lies on one side, and only opens into this funnel.

## THE NUTHATCH

Is in length five inches and three quarters, and weighs near an ounce. The upper part of the plumage is of a fine bluish grey, a black stroke runs from the mouth to the eye. The cheeks are white, and the breast and belly of a dull orange colour. The bird runs up and down the bodies of trees like the wood-

pecker. It feeds on insects and nuts, which it stores in the hollow parts of trees. It is said that this bird by putting its beak into the crack of a tree, can produce a sound, as if it was rending it asunder, which may be heard at least one hundred and twenty yards.

In some countries this bird, from the noise it produces in the manner above stated, is called the loggerhead. There are about six foreign species.

### THE BEE-EATER

Is about the size of a blackbird, and is shaped like the king-fisher. The bill is like that of the latter tribe, except that it is a little more incurvated; the tongue is long, slender, and fringed at the tip; and the feet are exactly like those of the king-fisher. It also resembles that bird in the brilliancy of its colours, but its appetites are totally different, it feeds on bees, insects, and sometimes on seeds. It is common in Italy, and particularly so in the island of Candia, or Crete, but is never seen in England. Other species of this beautiful bird are found in the oriental regions, especially at Bengal.

### THE WRYNECK,

WHICH is about seven inches long, and the expansion of its wings eleven, has its colour pencilled in the most elegant manner, though its plumage is marked in the plainest. Its bill is three quarters of an inch long, and its tongue is like a worm when extended. With this instrument it procures its food, which consists chiefly of ants. In England it is a bird of passage. It has a very singular and whimsical method of turning its neck round, and bringing

its head over its shoulders; from which it has received its name. The young ones hiss in the nest like so many snakes, insomuch that the rustics are sometimes prevented from plundering the nest, being apprehensive they are approaching the brood of that reptile.

## THE WOODPECKERS.

THESE birds live chiefly upon the insects contained in the body of trees; and for this purpose are furnished with a straight, hard, strong, angular and sharp bill, made for piercing and boring. They have a tongue of a very great length; round, ending in a sharp, bony thorn, dentated on each side, to strike ants and insects when dislodged from their cells. Their legs are short and strong, for the purpose of climbing. Their toes stand two forward and two backward, which is particularly serviceable in holding by branches of trees. They have hard stiff tails to lean upon when climbing. They feed only upon insects, and want that intestine called the cœcum; a circumstance peculiar to this tribe only.

There are more than fifty species, with many varieties, of this bird. They are found from the size of a jackdaw to that of a wren, and differ greatly in colour and appearance, but agreeing in the marks above mentioned. There are about five species known to Europe, or at least in England, viz.

The BLACK WOODPECKER, which is seventeen inches long, and is found in Germany; the green, and three species of spotted.

The GREEN WOODSPITE, or WOODPECKER, is called the *Rain Fowl* in some parts of the country, because, when it makes a louder noise than ordinary it is supposed to foretell rain. It is about the size of

a jay, and weighs six ounces; the throat, breast, and belly, are of a pale greenish colour; and the back, neck, and covert feathers of the wings are full green.

The GREAT SPOTTED WOODPECKER, weighs about three ounces, and is nine inches in length. The crown of the head is black, with a bar of crimson on the hind part of it. On each side of the neck is a spot of white, and the scapulars and wing coverts are white. The back and wings are black, and the breast is yellowish grey.

The MIDDLE SPOTTED WOODPECKER nearly resembles the preceding, but is smaller.

The LESSER SPOTTED WOODPECKER is scarcely an ounce in weight, and has the upper parts of the body mottled with white.

When a woodpecker, by its natural sagacity, finds a hollow or decayed tree, where there are worms, ants' eggs, or insects, it immediately prepares for its operations. Resting by its strong claws, and leaning on the thick feathers of its tail, it begins at once to bore with its sharp strong beak, until it discloses the whole internal habitation. It then sends forth a loud cry, upon which the whole insect tribe are thrown into confusion, and run hither and thither seeking for safety; while the invader luxuriously feeds upon them at leisure, darting its long tongue, and devouring the whole brood. Sometimes also, this bird alights upon the ground to try his fortune at an ant-hill, and seldom fails to procure a rich repast.

This bird builds its nest in the cavities of trees, and lays five or six eggs. It forms its mansion with much neatness, but uses neither straw, feathers, nor any other kind of lining. When the young are excluded, and before they leave the nest, they are adorned with



a scarlet plumage under the throat, which adds much to their beauty.

## THE CREEPER

Is the smallest European bird, except the crested wren, and weighs only five drachms. The upper part of the body is variegated with brown and black, and the breast and belly are of a silver white. This bird is very common in England; but from its agility in eluding the eye of the spectator, it is less frequently seen than other common birds. It feeds upon insects, and builds in holes of trees.

There are about fifty species, foreign and domestic, of this bird. The general colour is olive green. It inhabits the Sandwich islands, and is one of the birds whose plumage the natives make use of for their feathered garments.

In this order is included a numerous list from all the tropical forests of the east and west; but that which next claims our attention is

## THE TOUCAN,

A BIRD of the pie kind, whose bill is nearly as large as the rest of his whole body; and the tongue of which is feathered at the edges.

There are several varieties of this singular bird; but they agree in having an enormously large bill, convex, and serrated at the edges, which distinguishes this genus from all others.

The common toucan is shaped like the jackdaw, and its size is pretty nearly the same. The head is very large, and its beak is upwards of six inches in length, and in the thickest part two in breadth. The whole substance of this member is extremely slight,

and almost as thin as parchment. The chaps are of a bright yellow, except on the sides, which are a beautiful red. A black line surrounds the base of the bill. Round the eyes is a space of bluish skin, destitute of feathers. The head, hind part of the neck, the back, wings, tail, belly, and thighs, are black; while the under side of the head, the throat, and the commencement of the breast, are white. A series of red plumage appears between the black and the white in a crescent form. The covert feathers under the tail are red, and those above it are yellow.



Though this bird is furnished with such a formidable beak, it is very gentle and inoffensive; so easily tamed, that it will sit and hatch its young in the dwellings of men. It principally feeds on pepper, which it devours very greedily.

This species, which is a native of South America, is much esteemed for the delicacy of its flesh, and the beauty of its plumage. The feathers of the breast are particularly admired; and the Indians pluck off

the skin from that part, which when dry, they glue to their cheeks, considering it as a vast addition to beauty. The women, in particular, are fond of this singular ornament.

The MOTMOT is a bird almost exactly resembling the toucan, and considered by some as of the same genus.

## THE HORNBILL.

THIS bird by some is called the *calao Indian raven*. It is nearly allied to the toucan, and indeed seems to hold the same place in the warm climates of the old continent as the toucan does in the new. Their distinguishing characteristic is an immense bending bill, with frequently a large protuberance in the upper part of it, resembling an additional bill.

The RHINOCEROS HORNBILL, or *Rhinoceros* bird, is nearly as large as a turkey; the bill is ten inches long, and two and a half thick at the base. On the upper part is an appendage as large as the bill itself, and turning upwards, which measures eight inches in height. There is nothing else remarkable in the bird, as the general colour of the plumage is black. This bird is found in most parts of the East Indies, where, like the raven, it feeds upon carrion.

The HELMET HORNBILL is remarkable for having the same prominence of a conical form; and in the Philippine islands there is a species, the horn of which reaches backward beyond the eyes, ending in two angular points, which produce the effect of a bird with two horns.

Of the PIED HORNBILL, or *calao* of Malabar; the circumstance which distinguishes it from the rest of its kind is, that the breast, the belly, and a part

of the wings, are white, the remainder of the body is black.

There are about twelve species of this bird in all, one of which is white.

### THE ANI.

OF this bird there are about three species. Their bills, in a great measure, resemble the parrot. The largest is the size of a jay, the lesser about the size of a blackbird. The general colour of their plumage is black. They are gregarious birds, inhabiting the West India Islands, and may be made to talk like parrots.

### THE WATTLE BIRD

Is a native of New Zealand. It is about the size of a jay, of an ash-colour, and is peculiarly distinguished by the wattles, which grow under the bill, like those of a cock. The flesh is eatable.

### THE CRACKLE.

OF this bird there are about eleven species, inhabiting America and the tropical climates, some of them about the size of a magpie, others about that of a blackbird. Their plumage in general is black. They live on maize, fruits, and insects ; but one species in the Philippine Islands, which, from its beauty and resemblance to the bird of paradise, is called paradise crackle, is remarkable for its being an extraordinary destroyer of grasshoppers.

The BOAT-TAILED CRACKLE, from Jamaica, has its plumage black, but it is remarkable for the feathers of its tail forming a hollow like a boat on the

upper surface, so it may be compared to a hen's tail with the underside turned uppermost. It is the size of a cuckoo.



### THE PARROT

THIS bird is the best known among us of all foreign birds, as it unites the greatest beauty with the greatest docility.

The distinguishing characters of the parrot family are, that the bill is hooked; that the upper mandible is furnished with a moveable cere; that the nostrils are situated in the base of the beak; that the tongue is fleshy, obtuse, and entire; and that the feet are formed for climbing.

In their native woods, these birds live together in flocks, and generally breed in hollow trees, where they make a round hole for the accommodation of their young; but they do not take the trouble of lining it within. They lay two or three eggs, about the size of those of a pigeon, and are marked with little specks. The natives are very assiduous in seeking out their nests, and usually take them by cutting

down the tree. By this means, indeed, the young parrots are liable to be killed; but if one of them survive, it is considered as a sufficient recompense. The old ones are shot with heavy arrows, headed with cotton, which knock them down without killing them.

The facility with which the parrot is taught to speak, and the great number of sentences it is capable of repeating, are equally surprising. We are assured by a grave writer, that one of these was taught to repeat a whole sonnet from Petrarch.

A parrot belonging to a distiller, who had suffered pretty severely from an informer that lived opposite to him, was taught to pronounce the ninth commandment, *Thou shalt not bear false witness against thy neighbour*, with a very clear and articulate voice; and being generally placed in its cage, opposite the informer's house, it amused the whole neighbourhood with its persevering exhortations.

Willoughby tells us that a parrot belonging to Henry VII., who then resided in his palace at Westminster, by the river Thames, had learned many words from the passengers, as they happened to take the water. One day, sporting on its perch, the poor bird fell into the water, exclaiming at the same time, with a loud voice, "A boat! twenty pounds for a boat!" A waterman happening to be near the spot where the parrot was floating, immediately took it up and restored it to the king; insisting, as the bird was a favourite, that he should receive the promised reward. The king, after some time, agreed to leave it to the parrot's own decision; upon which the bird cried out, "Give the knave a groat."

Those who usually bring these birds over are content with three or four distinctions. The large kind, which are the size of a raven, are called maccaws;

the next size are simply called parrots; those which are entirely white are called lories; and the lesser size of all are called paroquets. The difference between even these is rather in the size than in any peculiar conformation, as they are all formed alike, having two toes before and two behind, for climbing and holding; strong hooked bills for breaking open nuts and other hard substances, on which they feed; and loud, harsh voices, by which they fill their native woods with clamour.

The bill is formed in a curious manner; the upper chap, as well as the lower, being moveable. By this means they can open their bills wider, and with more facility admit their food, which, from the formation of the upper mandible, would be difficult if only one of them had motion.

The tongue of this bird somewhat resembles the human; which, in the opinion of some writers, qualifies it so well to imitate the voice of man; but the organs by which the sounds are articulated lie much farther down in the throat, being performed by the great motion which the *os hyoides* has in those birds above others.

The parrot, though commonly domesticated in Europe, will not breed here. The climate is too cold for its warm constitution; and though it can bear our winter when arrived at maturity, yet it always seems sensible of its rigour, and loses both its spirits and its appetite during the colder part of the season.

In teaching the parrot to talk, it at first obstinately resists all instruction, but seems to be won by perseverance; makes a few attempts to imitate the first sounds; and when it has acquired the first word distinctly, the rest of its lesson is generally learnt with great ease.

They lay two or three eggs; and probably the smaller kind lay more. The food of the cotton tree intoxicates them in the same manner as wine does man; and even wine itself is drank by parrots, by which they are rendered more talkative and amusing. But of all food, they are fondest of the cardamus, or bastard saffron; which though strongly purgative to man, agrees perfectly with their constitution, and fattens them in a very short time.

There have been nearly one hundred and fifty different species enumerated. They are widely disseminated over Asia, Africa, and America; the Indians eat their flesh.

## THE COCKATOO.

OF the COCKATOO, or crested parrot, there are several species, but they chiefly differ in their plumage. The most common is the white, or cream-coloured; some, however, are black, and some of the white kind have a scarlet crest. This species is called the crowned cockatoo.

The HORNE PARROT is a bird of singular beauty and elegance, and is about the size of a small dove. The bill is bluish at the base, and black at the tip; the sides of the head are orange. From the crown spring two slender, dusky feathers, about an inch and a half in length, and tipped with crimson. The hind part of the neck and rump are yellow, the rest of the body is green, except the ends of the wings and the tail, which are blue. It inhabits New Caledonia.





### THE BIRD OF PARADISE.

THAT which is rare and beautiful is sure to create fiction. Some have described this bird as an inhabitant of the air only, living on the dew of heaven, and never resting on the earth; and, to complete the absurdity, have denied it legs, which the romantic habits thus ascribed to it had rendered unnecessary.

There are about eight different species of these birds, but that which is best known is the greater PARADISE BIRD, which appears to the eye to be nearly the size of a pigeon, though in reality the body is not much larger than that of a thrush. The tail, which is about six inches, is as long as the body; the wings are large, compared with the bird's other

dimensions. The head, the throat, and the neck, are of a pale gold colour. The base of the bill is surrounded by black feathers, as also the side of the head and throat, as soft as velvet, and changeable like those of the neck of a mallard. The hinder part of the head is of a shining green, mixed with gold. The body and wings are chiefly covered with beautiful brown, purple, and gold feathers. The uppermost part of the tail-feathers are of a pale yellow, and those under them white, and longer than the former. But what chiefly excites curiosity are two long naked feathers, which spring from the upper part of the rump, above the tail, and which are usually about two feet long. These are bearded only at the beginning and the end: the whole shaft for about one foot nine inches being of a deep black, while the feathered extremity is of a changeable colour, like the mallard's neck.

This bird is a native of the Molucca Islands, but found in greatest numbers in that of Aro. The inhabitants are not insensible of the pleasure they afford, and give them the name of God's birds, as being superior to all that he has made. They live in large flocks, and at night generally perch upon the same tree. They are called, by some, the swallows of Ternate, from their rapid flight, and their being continually on the wing in pursuit of insects, their usual prey.

As the country where they breed has its tempestuous seasons, when thunders and rain continually disturb the atmosphere, these birds are but seldom seen. The natives, who make a profitable trade of killing and selling them to the curious Europeans, conceal themselves in a tree where they resort, and having furnished themselves with arrows, exert their utmost

art and dexterity to shoot the king; for if they succeed in this the flock becomes an easy prey.

The KING BIRD OF PARADISE is about the size of a lark. The greater part of its external plumage is of a bright and vivid ermine, and all its colours have a soft and silky appearance, in some parts bearing the gloss of polished metal. The two shafts which proceed from the rump are blackish, without beards, and extend far below the tail and wings. It is supposed to breed in New Guinea, where there is also a species, the predominant colour of which is black.

### THE BEEF-EATER

Is about eight inches and a half long. The upper part of its plumage is light brown, and its breast a dirty yellow. It has a strong and thick bill, with which it picks the worms and other insects which are enclosed under the skin on the backs of the oxen, whence it derives its name. It is a native of Senegal.

### THE CURACUI.

OF this bird there are about seven species, most of them inhabitants of South America. They are beautiful birds, the plumage of some of them being ash-coloured, and of others reddish, finely varied with white, &c.

### THE BARBETS.

THESE birds are described as a dull, stupid race, inhabiting the tropical climates. They probably take their name from the strong bristles which surround

the bill. They are in general larger than a lark, and vary greatly in plumage, being black, green, red-dish, &c.

### THE JACAMAR

Is a beautiful bird. The general colour of its plumage is green, and in its habits and form it bears a considerable resemblance to the king-fisher. There are three or four species, all inhabiting South America.

### THE TODY

Is a small bird which bears considerable resemblance to the fly-catchers. Latham reckons about fourteen species, all inhabiting the warmer climate of America. They are green, ash-coloured, blue, brown, and pied, and seldom are found to exceed the size of a wren.



### THE HUMMING-BIRD.

OF this charming little animal, there are not less than sixty species, from the size of a small wren

down to that of a bee. An European could never have supposed a bird existing so very small, and yet completely furnished with a bill, feathers, wings, and intestines, exactly resembling those of the largest kind. A bird not so big as the end of one's little finger, would probably be supposed but a creature of imagination, were it not seen in infinite numbers, sporting in the fields of America, from flower to flower, and extracting their sweets with its little bill.

The smallest of these birds is about the size of a bee, and weighs no more than twenty grains. The feathers on its wings and tail are violet brown, but those on its body and under its wings, are of a greenish brown, with a fine red gloss, which no silk or velvet can imitate. The bill is black, straight, slender, and of the length of three lines and a half.

The RUBY-NECKED is, however, the most beautiful of the species. It is half the size of a common wren. The upper parts of the body are brown with a mixture of green gold, and the throat like the finest topaz. To describe minutely many of these beautiful animals would far exceed our limits, suffice it to say they are of almost all colours, crimson, green, emerald, white breasted, and spotted. Some of them with, and some without crests. The eyes of most of them are very small, and as black as jet.

It is inconceivable how much these birds add to the high finishing of a luxuriant western landscape. As soon as the sun is risen, the humming-birds of different kinds are seen fluttering about the flowers, without ever alighting on them. They are continually in motion, visiting flower after flower, and extracting its nectar as if with a kiss; while the rapid motion of their wings produces a humming sound, which first gave rise to their appellation.

The nests of these birds, which are about the size of a hen's egg cut in two, are not less curious than the rest. They are suspended in the air, at the point of the twigs of an orange, a pomegranate, or a citron tree; and are composed of cotton, fine moss, and the fibres of vegetables.

The female lays two eggs, about the size of small peas, and as white as snow, with here and there a yellow speck. The young ones appear at the end of twelve days, and are at first bare, but are gradually covered with down, and at last with feathers.

## CHAPTER IV.

## THE PASSERINE, OR SPARROW ORDER.

The *Stare*--The *Thrush*--The Missel Thrush--The Thristle--The Blackbird--The Mockbird--The *Chatterer*--The Carunculated Chatterer--The *Grosbeaks*--The Hawfinch--The Bullfinch--The Java Sparrow--The *Bunting*--The Yellowhammer--The Common Bunting--The Ortolan--The *Finch*--The Sparrow--The Gold Finch--The Chaffinch--The Linnet--The Canary Bird--The *Flycatchers*--The Spotted, Pied, and Fan-tailed Flycatchers--The *Lark* Genus--The *Wagtail*--*Warblers*--The Nightingale--The Redbreast--The Wren--The Wheat-eater--The Thorn-tailed Warbler--The *Titmouse* Genus--The *Swallow*--The Swift--The Martin--The *Goatsucker*--The *Coly*--The *Tanager*--The *Manakin*.

## THE STARE, OR STARLING.

THERE are few birds better known in these temperate climates than that under our consideration. It has a nearer relation with the blackbird than that of any other; but it is distinguished from that genus by the glossy green of its feathers in some lights, and the purple in others. It breeds in hollow trees, cliffs, towers, ruins, and often in high rocks over the sea. It makes its nest of straw, small fibres of roots, &c.; and lays four or five eggs. Its voice is rough, but it is easily taught to speak. At the approach of spring these birds assemble in fields, as if in consultation together, and for three or four days seem to take no nourishment; the greater part leave the country, the rest breed here.

Of this bird there are about thirteen species, foreign and domestic. There have been found varieties of the common stare, white, black, and pied. At New Zea-

land is a species distinguished by wattles, like those of a cock; at the Cape of Good Hope they are found with combs; and in China there is a species of a beautiful green.

## THE THRUSH.

OF this genus there are not less than one hundred and thirty species, foreign and domestic.

The MISSEL-THRUSH is distinguished from all of the kind by its superior size, being eleven inches in length, and weighing near five ounces. It differs but little from the throstle, only that the spots on the breast are larger. It builds its nest in bushes, or on the side of some trees, as all of this kind are found to do, and lays four or five eggs in a season. Its song, which it begins in spring, sitting on the summit of some high tree, is not so sweet as that of the throstle. It is the largest bird of all the feathered tribe that has music in its voice; the note of all large birds being harsh and discordant. It feeds on insects, holly, and mistletoe berries. It is very common in England.

The THROSTLE is only nine inches in length. It differs from the former chiefly in the marks on its breast, which in the missel thrush are of an irregular shape; but in the throstle are like heads of arrows with the points turned upwards. Varieties of this bird have been found wholly white.

The BLACKBIRD, though of a retired and solitary disposition, is a well-known bird, and the deepest toned warbler of the woods. The plumage of the male is of a coal black colour; that of the female a brown, or dark russet. In some cold countries a variety of this bird is found of a pure white colour.

To these might be added a great many foreign birds



of the thrush kind, living like them on fruit and berries; and many of them remarkable for the beautiful tints with which they are adorned. Passing however, over these we shall only mention the American

**MIMIC-THRUSH**, or *Mock-bird*. It is but a plain bird to the eye, about the size of a thrush, of an uniform grey colour, with a reddish bill. It is possessed not only of its own natural notes, which are musical and solemn, but it can assume the tone of every animal of the wood, from the wolf to the raven. It will at one time allure the lesser birds with the call of their males, and then terrify them with the screams of the eagle. It pleases most, however, when it is most itself.

## THE CHATTERERS

FORM a very beautiful race of birds, including about ten species.

The **CARUNCULATED CHATTERER** is a native of Cayenne and Brazil. It is about twelve inches long. The plumage of the male is a pure white, except a tinge of yellow on the rump, quills, and tail. The female has the upper part of the plumage olive-grey, and the lower parts grey edged with olive. It has a fleshy carbuncle at the base of the bill, which projects over it like that of the turkey-cock. Its voice is noisy and garrulous, like that of all the kind, and so loud, that it may be heard at the distance of half a league.

## THE GROSBEAKS

ARE a very extensive genus of birds, including nearly one hundred species, of which, however, not

more than five species are common in Europe, viz the hawfinch, the pine grosbeak, the crossbill, the bullfinch, and the green grosbeak, or greenfinch. The common character is a short, thick bill, and a tongue as if cut off at the end

### THE BULLFINCH.

THE head, wings, and tail of this bird are black, and the breast and belly red; but in the female the under parts are brownish. It is common in most parts of the continent of Europe, and in England. It builds its nest in bushes, and brings forth its young about the end of May. It is chiefly remarkable for its capability of its being taught to sing and whistle different tunes.

The HAWFINCH visits England at uncertain times. It is in length six inches and three quarters. The chin is black; the neck ash-colour; the body brown with the greater quill feathers black, and the under parts of the body a dirty flesh-colour.

Among the foreign birds of this genus is that beautiful little animal, so well known for its red bill and elegant plumage, which generally goes under the name of the *Java-sparrow*.

### THE BUNTINGS.

THIS genus is distinguished by a strong conic bill, and in the roof of the upper mandible a hard knob to break and grind seeds.

The first of this species is the YELLOWHAMMER, which is distinguished by the crown of the head being generally of a beautiful pale yellow. It is a bird but little esteemed, as its voice possesses but little melody.

The COMMON BUNTING is the size of the former, but stouter in the body. It is of a pale olive brown. They collect in flocks in the winter, and are often seen on the branch of some bare tree in immense numbers.

Besides these there is the *reed sparrow*, the *tawney bunting*, the *snow bunting*, and the *mountain-finch*; but the most famous of all is

The ORTOLAN, which is less than the yellowhammer. The plumage on the upper parts is brownish chesnut, mixed with black, the under parts are pale rufous. These birds are common in France and Italy, but are not found in England. They are caught in numbers to fatten for the table. This is done by enclosing them in a dark room and feeding them on oats and millet. By this process they become so fat, that they would die from that cause alone, were they not killed for sale. In this state they will sometimes weigh three ounces, and are accounted a most luxurious repast by the epicure.

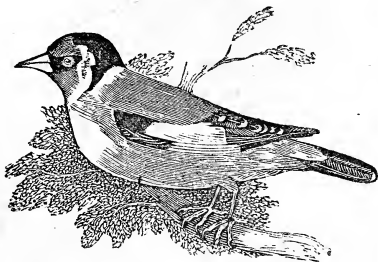
There are about sixty-five species of the bunting, foreign and domestic.

## THE FINCH GENUS

Is distinguished from the preceding by a bill perfectly conic. It includes more than one hundred species, one of which, the sparrow, has given a name to this order of birds. Of the sparrow there are two species, the *tree* and the *house sparrow*, the latter of which is the larger.

The CHAFFINCH resembles the bullfinch, but it is not so black on the head, nor so deep on the breast, and is conspicuous for a broad bar of white on each wing. It receives its name from its partiality to chaff as a food.

The LINNET is too well known to need a description. It is much and deservedly esteemed for its song, which frequently subjects it to captivity. It feeds on all kinds of seeds, but seems to prefer that of flax.



## THE GOLDFINCH

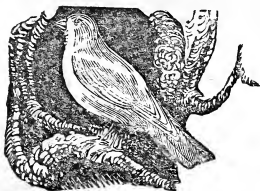
Is the most beautiful bird which inhabits these regions, and is also one of the most docile and harmonious.

This genus comprehends a great variety of foreign birds, eminent for their beautiful plumage, and some for the music of their song; among these we shall select the

## THE CANARY BIRD

WHICH, indeed, is now become so common, that its native habits, as well as its native country, seem almost forgotten. Though by the name it appears that

these birds came originally from the Canary Isles, yet we have them only from Germany.



In its native islands, a region equally noted for the beauty of its landscapes and the harmony of its groves, the canary-bird is of a dusky grey colour, and so different from those usually seen in Europe, that some have doubted whether it be of the same species. With us they have that variety of colouring usual in all domestic fowls; but they are more esteemed for their note than their beauty, having a high piercing pipe, continuing for some time in one breath without intermission, then raising it higher and higher by degrees, with great variety.

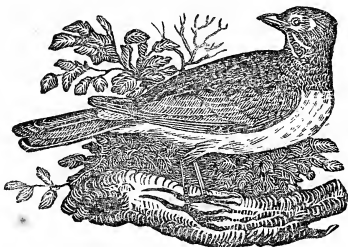
## THE FLYCATCHERS

ARE with us summer birds only, and take their name from feeding upon insects. The SPOTTED FLYCATCHER, however, eats fruit, and is called in Kent the cherry-sucker. It is in general of a mouse colour, the head spotted with black, and the wings and tail edged with white.

The PIED FLYCATCHER is less than a hedge-sparrow, and is known by a white spot on the forehead.

There are upwards of eighty foreign birds of this kind.

The **FAN-TAILED FLYCATCHER** is a native of New Zealand. It is about the size of the bearded titmouse, may be easily tamed, and will sit on any person's shoulder to pick off the flies. The whole head is black, with a white collar; the upper part of the body is olive brown; the under part yellowish nut colour, and the tail white, except the two middle feathers, which are black.



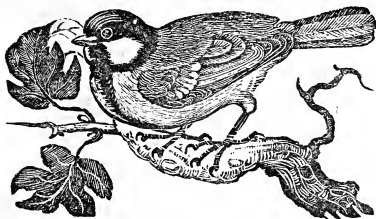
## THE LARK

Is universally considered as harbinger of the spring and herald of the morn. The genus includes about twenty-eight species, all of them distinguishable by the length of their heel. The sky-lark, which is the most common; the wood-lark, the tit-lark, and the field-lark, which is larger than the former, but less than the sky-lark; the red-lark, and the small crested-lark, are all British birds. The sky-lark and the wood-lark are the only birds that sing as they poise themselves in the air.

The lark builds its nest on the ground, lays four or five eggs, and commonly produces its young about the beginning of May. While the female is performing the office of incubation, the male usually entertains her with his song; and though he rises to a viewless height, never loses sight of his beloved partner. This harmony continues for several months.

### THE WAGTAIL.

THERE are about eleven species of these birds; with us only the WHITE, (so called from having a greater proportion of white on the belly and tail than the others) the YELLOW, and GREY WAGTAIL, are common. The manners of these birds are well known.



### THE TITMOUSE.

OF this genus there are about six species known in these climates, though there are not less than twenty-eight in all.

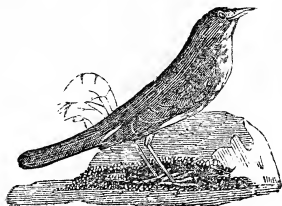
The BEARDED TITMOUSE is about six inches long, and is distinguished by a tuft of black feathers under

each eye, resembling a mustache. It is common in the marshes near London, and has erroneously been classed among the butcher-birds.

Many of the foreign birds of this genus are curious. The GREAT-HEADED TITMOUSE is a native of New Zealand. It is four inches and a half long. All the upper parts of the body are black, except a spot of white on the head, wing, and tail. The breast is orange.

## THE WARBLERS

ARE a very numerous genus, including upwards of one hundred and fifty species.



## THE NIGHTINGALE.

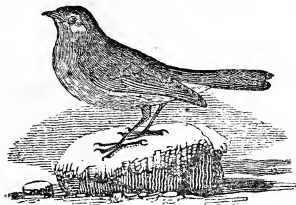
THIS most famous of the feathered tribe visits England in the beginning of April, and leaves it in August. It is found but in some of the southern parts of that country, being totally unknown in Scotland, Ireland, or North Wales. They frequent thick hedges and low coppices, and generally keep in the middle of the bush, so that they



are rarely seen. They begin their song in the evening, and often continue the whole night. If undisturbed, they will sit upon the same tree for weeks together.

The nest of this bird is formed of the leaves of trees, straw, and moss; and is found at the bottom of hedges, where the bushes are thickest and best covered; it is artfully concealed, so that but very few are found by boys when they go on these pursuits. While the female continues sitting, the male, at a good distance, but always within hearing, cheers the passing hour with his voice, and, by the short interruption of its song, often gives her warning of approaching danger. She lays four or five eggs, of which but a part, in our climate come to maturity.

The RED-START is a bird of passage, like the nightingale. Its forehead is white; the cheeks and throat black; the neck and back of a bluish grey, and the breast, &c. are red.



THE RED-BREAST.

THIS is the most familiar of all birds. It feeds on insects; eats crumbs of bread when its usual food fails; and while other birds are ready to perish

with cold and hunger, seeks the shelter of a house or cottage, in which it is generally a welcome guest.

The song of the red-breast is particularly soft and sweet; and we enjoy it the greater part of the winter, when the other feathered songsters are silent. In summer, indeed, it is equally musical; but at that time, its modest notes are undistinguished in the general warble of the feathered tribe.

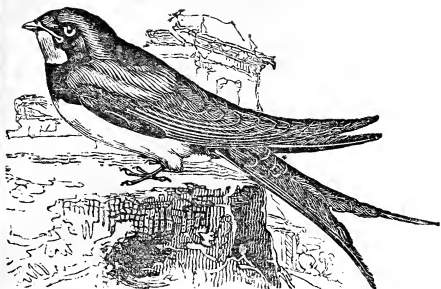
The **BLACK-CAP** derives its name from the top of its head being black. The hind part of the neck is of a light ash-colour, the back and coverts of the wings are of a greyish green, and the breasts and upper parts of the belly are of a pale ash-colour.

The notes of this bird are so sweet that it is called by some the mock-nightingale. It is a bird of passage.

The **WREN** is the smallest of all British birds, weighing no more than twenty-six grains. It is easily distinguished from other birds of its kind by a beautiful scarlet mark on its head, bounded on each side by a fine yellow line.

The **WHEAT-EAR** is more celebrated for the delicacy of its flesh than for the excellence of its melody. The numbers ensnared in the neighbourhood of Eastbourn, are said to amount annually to about 1840 dozen.

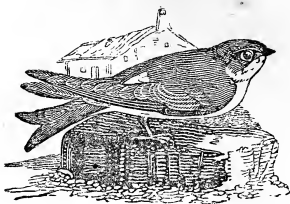
Of the foreign birds the **THORN-TAILED WARBLER** is one of the most remarkable. It is a native of Terra del Fuego, and about the size of a sparrow. The upper parts of the body are reddish brown, mottled with yellow, and the breast and belly are white.



## THE SWALLOW KIND.

THIS kind comprehends about thirty-seven species. The CHIMNEY SWALLOW is the most common. The upper parts of its plumage are black, with a purplish gloss; the forehead and chin red; and the breast and belly white; the tail is very forked.

The SWIFT is the largest of the kind known in these climates, being near eight inches long, and the extent of the wings eighteen inches, though it scarcely weighs an ounce. The whole plumage is a sooty black, except the chin, which is white. The legs are remarkably short, and, consequently, all its actions are performed on the wing. It collects its food in this manner, consisting entirely of insects; and even the materials of its nest it collects either as they are carried along with the wind, or picks up from the surface in its sweeping flight.



### THE MARTIN.

THE MARTIN is inferior in size to the chimney swallow, and its tail is less forked. It builds commonly under the eaves of houses, and sometimes against the sides of high cliffs over the sea.

These birds are all known by their very large mouths, which, when they fly, are always kept open; they are not less remarkable for their short, slender feet, which are scarcely able to support the weight of their bodies; their wings are of immoderate extent for their bulk, and their note is a slight twittering, which they seldom exert upon the wing.

Insects are their principal food; and no sooner does spring awaken that class of animated nature from their state of torpidity, than the swallow makes its appearance. At first it flies heavily and feebly; but, as the weather grows warmer, and the number of insects increase, it acquires additional strength and activity.

The nest of these birds is built with great industry and art; it is formed with mud, moistened with water, and kept firm by long grass and fibres; it is lined within with goose feathers, which are ever the warmest and the neatest. The martin covers its nest

at top, and has a door to enter at ; the swallow leaves hers quite open

At the latter end of September the swallows leave us, and for a few days previous to their departure, assemble in vast flocks, on house-tops, as if deliberating on the fatiguing journey that lies before them. Their flight is directed to Congo, Senegal, and along the whole Morocco shore.

They are first observed to arrive in Africa about the beginning of October ; and are thought to have performed their fatiguing journey in the space of seven days. When interrupted by contrary winds, they are sometimes seen, wavering in their course, far off at sea, and alighting upon whatever ships they find in their passage ; but, after a few hours' rest, they renew their flight, and continue the course which they had been steering before.

## THE GOATSUCKER

Is nearly allied to the swallow, both in form and manners. Like the swallow, it is remarkable for the wideness of its gape ; it feeds upon insects, and collects its food upon the wing ; it preys in the dusk of the evening, on which account it has been termed the nocturnal swallow.

There is only one species known in Europe, and this is considerably larger than the swallow, being ten inches and a half in length, and weighing two ounces and a half. The ground of the plumage is almost black, but is beautifully diversified with ash-colour, and white in different parts ; and it has, like all the kind, a number of bristles about the bill. Its note resembles the noise of a large spinning-wheel.

There appears to be no other ground for the ridiculous story of sucking the goats, but the width of

its mouth, which can be accounted for on much more rational principles. It makes no nest, but lays its eggs on the bare ground, with no seeming care whatever.

There are about fifteen foreign species of this bird.

### THE COLY.

THIS genus includes about five species of foreign birds, much resembling each other in character and manners.

The WHITE-BACKED COLY is in length twelve inches. The general colour of the plumage is bluish ash colour; the head is very full-crested; the upper parts of the body are whitish, and a stripe of pure white runs the whole way down the middle of the back. The tail is uniform, and of an immense length.

### THE TANAGER

HAS been called the red-breasted blackbird, and the greater bullfinch. The genus includes about forty-five species. They are in general about the size of the canary bird, and vary in plumage according to the species and the climate. They bear much relation to the bullfinch, and are found in all the warm climates of America, north and south.

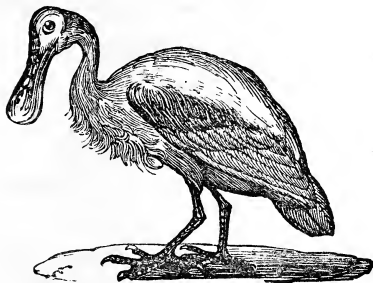
### THE MANAKINS.

As the last species bears a resemblance to the bullfinch, so the present bears some relation to the titmouse. They vary, however, from the size of a pigeon to that of a small wren. They are in general shy, but are sometimes rendered so tame that they run along with the poultry.

## CHAPTER V.

## WATER-FOWL WITH CLOVEN FEET.

The *Spoonbill*—The *Heron*—The *Bittern*—The *Crane*—The *Egret*—The *Stork*—The common *Stork*—The *Gigantic Crane*—The *Ibis*—The *Egyptian Ibis*—The *Curlew*—The *Snipe* Genus—The *Sandpiper*—The *Stint*—The *Ruff*—The *Plover*—The *Golden Plover*—The *Long-legged Plover*—The *Sanderling*—The *Oyster Catcher*—The *Pratincole*—The *Rail*—The *Water Rail*—The *Gallinule*—The *Crake*—The *Water Hen*—The *Boatbill*—The *Umbre*—The *Jacana*—The *Sheathbill*. Water Fowl with pinnated feet—The *Phalarope*—The *Grey Phalarope*—The *Coot*—The *Grebe*—The *Eared and Red-necked Grebes*.



THE SPOONBILL.

THIS is the first among the above division of birds, which modern naturalists present to our consideration. It is remarkable for the curious form of its

bill, which, in our European spoonbill, is six inches and a half long. Its body is more bulky, in proportion to its height, than most of the crane kind. Yet still it is a comparatively tall bird; its toes are divided: it feeds among waters, and seems to possess the natural dispositions of the crane. The common colour of those of Europe is a dirty white; but those of America are of a beautiful rose-colour. The bill, which runs out broad at the end, as its name denotes, is there about an inch and a half wide. This strangely fashioned instrument in some is black; in others of a light grey; and in those of America, it is of a red colour, like the rest of the body. All round the upper chap there runs a kind of rim, with which it covers that beneath; and for the rest, its cheeks and its throat are without feathers, and covered with a black skin.

The DWARF SPOONBILL is found at Surinam, and is not above the size of a sparrow.

## THE HERON.

OF this genus, Latham has enumerated not less than eighty-two species, all differing in their size, colour, and plumage; and with talents adapted to their place of residence, or their peculiar pursuits. But how various soever the heron kind may be, they have the common character of cowardice and rapacity, indolence, yet insatiable hunger.

The common heron is remarkably light in proportion to its bulk, scarcely weighing three pounds and a half, yet its wings, when expanded, are five feet from tip to tip. Its bill is five inches from the tip to the base; its claws are long, and sharp, and the middlemost toothed like a saw. Of all birds, this commits the greatest devastation in fresh water; and

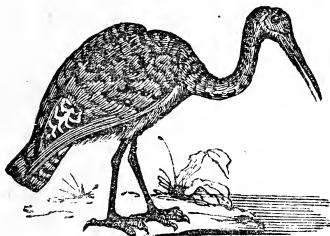


there is scarcely a fish, though ever so large, that he will not strike at and wound, though unable to carry it away. But the smaller fry are his chief subsistence. His method is to wade as far as he can go into the water, and there wait the approach of his prey, which he darts upon with inevitable aim. Willoughby tells us of his having seen a heron that had been shot, and that had seventeen carps in his belly all at once which he had digested in six or seven hours.

Though this bird lives chiefly among pools and marshes, yet its nest is built on the tops of the highest trees, and sometimes on cliffs, hanging over the sea. They are never in flocks when they fish; but in making their nests, they love each other's company. Their nests are made of sticks and lined with wool, and the female lays four or five eggs, of a pale colour. It is said to be a very long lived bird.

There appears to be only three species of the heron kind known in England, viz. the common heron, which we have been describing, and which is blue, the white heron, the bittern, or mire-drum.

### THE BITTERN.



THE BITTERN is remarkable for producing a terrifying sound, much like the interrupted bellowing of a bull, but hollower, and louder, which is heard at a mile's distance.

This bird, though of the heron kind, is yet neither so destructive nor so voracious. It is a retired, timorous animal, and lives upon frogs, insects and vegetables. It lays its eggs in a sedgy margin, or amidst a tuft of rushes, and composes its simple habitation of sedges, the leaves of water-plants and dry rushes. It lays generally seven or eight eggs, of an ash green colour, and in three days leads its young ones to their food.



THE CRANE.

THE CRANE is a tall, slender bird, with a long neck and long legs. The top of the head is covered with black bristles, and the back of it is bald and red,

which sufficiently distinguishes this bird from the stork.

The crane is a very social bird, and they are seldom seen alone. Their usual method of flying or sitting is in flocks of fifty or sixty together; and while a part feed, the rest stand like centinels upon duty. They subsist, for the most part, upon vegetables; and they are known in every country in Europe, except England. They are birds of passage, and are seen to depart and return regularly at those seasons when their provision invites or repels them.

In their journeys, it is amazing to conceive the heights to which they ascend when they fly. Their note is the loudest of all birds, and is often heard in the clouds, when the bird itself is unseen. They govern and direct their flight by their cries; and as they have the most distinct vision of every object below, they exhort each other to proceed or descend, when a fit opportunity offers for depredation.

The EGRET is of the crane kind, but only one species is known in Europe, which is called the *little egret*. It is of the size of a fowl; and its plumage is a beautiful white.

STORKS are birds of passage; but it is hard to say whence they come, or whither they go. When they withdraw from Europe, they all assemble on a particular day, and never leave one of their company behind them. They take their flight in the night; which is the reason the way they go has never been observed. They make their nests on the tops of houses and chimneys, as well as of high trees. The female lays from two to four eggs, the size of those of geese.

The COMMON STORK is quite white, except the greater wing, coverts, and the quills.

The food of these birds consists in a great measure of frogs and serpents.

The GIGANTIC CRANE will frequently measure seven feet and a half when standing erect, and from the tip of one wing to that of the other, fourteen feet ten inches. The head and neck are naked, and of a yellowish colour. The feathers on the back and wings are of an iron colour, those of the breast and belly of a dirty white. The craw hangs down on the fore part of the neck like a pouch, and the lower part is hairy. These birds are gregarious. They inhabit the southern parts of Africa and India. They prey upon birds, reptiles, and small quadrupeds.

### THE IBIS.

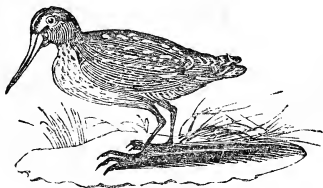
HARDLY deserves the name of an European bird, since only one species is found there, viz. the *Bay Ibis*, which is twenty-one inches long. The upper parts of the body are glossy green, and the lower parts are brown, with a gloss of gold on the breast. It inhabits Italy, some parts of Germany, and about the Caspian and Black seas.

The EGYPTIAN IBIS measures from thirty to forty inches in length. The bill is seven inches long, is slightly curved, and ends in a blunt point. The plumage is a reddish white, most inclining to red on the back and the wings. It is found in great numbers in lower Egypt, in places just freed from the inundations of the Nile, where it is of signal service in destroying the reptiles, insects, &c. This bird so famed in history and mythology, is often found in the sepulchres along with the mummies, and was formerly held sacred by the Egyptians.

## THE CURLEW

Is a well known bird, which in winter frequents our sea coasts and marshes, feeding chiefly on frogs and marine insects. In summer they retire to the mountainous and unfrequented parts to breed. They differ much in size, some weighing thirty-seven ounces, and some not twenty-two; the length of the largest is twenty-five inches. The upper parts of the plumage are of a pale brown; the breast and belly white, marked with oblong spots.

There are about eleven species, foreign and domestic, of the curlew.



## THE SNIPE.

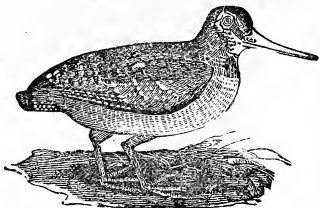
THIS genus includes upwards of thirty species.

The GODWIT generally weighs twelve ounces and a half, and is in length sixteen inches. The plumage on the upper part is of a light reddish brown, the belly white, the quills are blackish. There is a broad white stroke from the bill to the eye. They are taken in the fens, and, when fattened, are esteemed a great delicacy.

The COMMON SNIPE weighs about four ounces,

but there is a species, though very rare, which is more than double its weight.

The JACK SNIPE was formerly supposed to be the male snipe, merely from its frequenting the same haunts; it is, however, now well known to be of a different species. It scarcely weighs two ounces.



### THE WOODCOCK

Is a very delicate bird, much esteemed by the epicure; and affords particular amusement to the sportsman. Its colours are a variation of black, grey, and reddish brown.

During summer, woodcocks inhabit the Alps, and the northern countries of Europe, where they breed, but no sooner does the frost set in, than they wing their flight to more temperate regions. Before their departure, they flock towards the sea coast, and if the wind is favourable immediately take wing, but otherwise prudently wait for a propitious gale.

### THE SANDPIPER GENUS

INCLUDES, of well-known birds, the *Lapwing*, the *Ruff*, the *Knot*, the *Purro* or *Stint*, the *Turnstone*, and the *Dunlin*.

The **RUFF** is an animal not generally known, being confined to the north of Europe, during the summer, and in England only visiting certain parts, viz., Lincolnshire, the Isle of Ely, and the adjacent parts of Yorkshire in the spring. The male is distinguished principally by a circle of long feathers surrounding the neck, from which it takes its name. The female is called the **Reeve**. The ruff has plumage of various colours, but the ground is brown; the female has her plumage more of a uniform brown. This bird is so noted for its contentious spirit, that it has obtained the epithet of the fighter.

The **PURRO** weighs only an ounce and a half, and is in length seven inches. The upper parts of the plumage are brownish ash-colour, the breast and belly white, as are the lower parts of the quill feathers. There is a white stroke which divides the bill and the eyes. These birds are seen in numerous flocks on our sea-coasts in winter, and in their flights observe uncommon regularity. They were formerly a frequent dish at our tables, known by the name of stints.

Of the **SANDPIPER**, properly so called, there are about twelve species known in Europe, from the size of a thrush to that of a hedge-sparrow. The common sandpiper weighs about two ounces; the head is brown, streaked with black; the back and coverts brown, mixed with glossy green; the breast and belly pure white.

The genus includes forty species, foreign and domestic.

## THE PLOVER.

**UNDER** this description about twenty-four species are comprehended.

The **GOLDEN PLOVER** is a well-known bird, and found in small flocks in the winter time on all our moors and heaths. It may be enticed within gunshot by a skilful imitator of their voice, and is considered as a delicacy.

The **LONG-LEGGED PLOVER** is a singular bird. Though inferior in size to the golden plover, it measures nearly a foot and a half when standing erect, on which account it has been called the red-legged crane. The head, back, and wings are glossy black, the rump and belly white. It is not common in England.

### THE OYSTER CATCHER

Is about the size of a crow, and is well-known on our coasts under the name of the sea-pie. Its bill is three inches in length, and of an orange colour. The head, neck, back, and quills, are black, except a crescent of white which runs across the throat; the belly, rump, and greater wing coverts are also white, and the tip of the tail black. It receives its name from its feeding upon shell fish, and particularly oysters, which, when it observes on any occasion gaping wide enough for the insertion of its bill, it thrusts it in, and without further ceremony deprives the shell of its inhabitant.

There are but one species known, which is diffused over all quarters of the globe.

These last five genera have a strong affinity with each other, and all are distinguished by similar manners. As they are usually employed rather in running than in flying, and as their food lies entirely upon the ground, so they run with great swiftness for their size, and the length of their legs assists their velocity. But as, in seeking their food, they are



often obliged to change their station, so also they are equally swift of wing.

The curlew, the woodcock, the snipe, the godwit, the golden and the long-legged plover, the knot, and the turnstone, are rather the guests than the natives of this island. They visit us in the beginning of winter, and forsake us in the spring. They then retire to the mountains of Sweden, Poland, Prussia, and Lapland, to breed.

The lapwing, the ruff, the red-shank, the sand-piper, and the oyster catcher, breed in this country, and for the most part reside here. In summer they frequent such marshes as are not dried up—the Essex hundreds, and the Lincolnshire fens.

As all these birds run and feed upon the ground, so they are all found to nestle there. The number of eggs generally to be seen in every nest is from two to four. The nest is made without any art; but the eggs are either laid in some little depression of the earth, or on a few bents and long grass, that scarcely preserve them from the moisture below.

The long billed birds suck up worms and insects from the bottom of weedy pools; those furnished with shorter bills pick up such insects as lie nearer the surface of the meadow, or among the sands on the sea shore.

## THE PRATINCOLE.

ONLY three species of this genus are known, with some varieties.

The AUSTRIAN PRATINCOLE is the size of a black-bird, with a short curved bill. The upper parts of the body are greyish brown, and the throat is white, surrounded by a black line commencing at each eye. It is an inhabitant of Germany, where there is also a spotted kind.

## THE RAIL.

THE WATER-RAIL, or brook ouzle, is a bird well known in these parts of Europe. It is a large slender bird, with a bill one inch and three quarters long. Its weight is four ounces and a half. The upper parts of the plumage are black, edged with olive brown, the lower parts ash-coloured. It is generally found on the edges of ponds or brooks well furnished with cover.

This is the only species known in England, and we believe in Europe.

There are about twenty-two species, foreign and domestic.

## THE GALLINULE

ALSO includes about twenty-two species, of which only five or six are common in Europe, and but three are known in Great Britain.

The CRAKE is a bird well known in most parts of Great Britain, and is still more common in Ireland.

The COMMON GALLINULE, or *Water-hen*, weighs fifteen ounces. The plumage above is a sooty black, beneath, ash-coloured. Its bill is red, and covered at the base with a red membrane. This bird, whose wings are short, is obliged to reside entirely near the spot where her food lies. She builds her nest upon low trees and shrubs by the water-side. She lays twice or thrice in a summer, and her young ones swim the moment they leave the egg, pursue the parent, and imitate all her manners. Thus she rears two or three broods in a season, and when the young

are grown up, she drives them off to shift for themselves.

## THE BOATBILL

Is a native of America. It is about the size of a common fowl. The general colour of the bill is dusky, and the skin beneath the upper jaw, is capable of distention. From the head springs a long black crest. The plumage is a pale bluish ash-colour, except the forehead, which is white; the feathers which hang over the breast are loose, like those of the heron. There are varieties of this bird, both spotted and brown. It preys upon fish, like the kingfisher, by perching upon trees which overhang the streams, and dropping on the fish as they swim by.

## THE UMBRE

Is the size of a crow, and not much differing in colour, being a deep brown, or umbre. The bill is three inches and a half in length, with a furrow on each side the upper mandible, and from the head springs a large crest of loose feathers, better than four inches in length. The bird now described came from the Cape of Good Hope. There is but one species known.

## THE JACANA

Is found in most of the tropical climates, but is most common in South America. It is remarkable for the length of its toes, and for the wings being armed in front with sharp spurs. They vary in their plumage, some being brown, some dark, and some variable.

These birds are kept tame by the natives to take care of the poultry. Though not larger than a common cock, he is able, by means of the spurs on his wings, to keep off birds as large as the carrion vulture, and even that bird himself.

There are about ten species, differing in size from that of a common fowl to that of a water rail.

### THE SHEATHBILL

Is an inhabitant of New Zealand, and is remarkable for a horny sheath which covers the upper part of its bill, which is moveable, and which may be raised upwards or laid flat on the bill.

There is but one species at present known, which is as large as a pigeon, and as white as snow.

They feed on carrion and shell-fish.

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### WATER-FOWL WITH PINNATED (OR FINNED) FEET.

We know only three kinds of this description of birds.

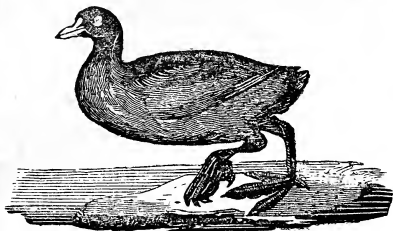
Their general characteristic is that of having their toes furnished with scolloped or jagged membranes, which perhaps may assist them in swimming. In fact they appear in every respect an intermediate race between the tall and slender birds of the crane form, and the common web-footed water fowl.

### THE PHALAROPE

Is in every respect, except the characteristic before mentioned, formed like the sandpiper. It is the size of the purro, and weighs an ounce.

The GREY PHALAROPE has the upper parts of the plumage ash-coloured, varied a little with dusky and white, and the breast and belly white.

These birds are sometimes found in England; and there are about three foreign species.



### THE COOT

Is a well known bird. It weighs from twenty-four to twenty-eight ounces. The bald part of the head white; the upper parts of its plumage are black, the breast and belly white. The coot is found in large streams remote from mankind. It there makes a nest of such weeds as the stream supplies, and lays them among the reeds, floating on the surface, and rising and falling with the water. The reeds among which it is built keep it fast; but should it happen to be washed into the middle of the stream, the bird sits in her nest, like a mariner in his boat, and steers, with her legs, her cargo into the nearest harbour; there having attained her port, she continues to sit in great tranquillity, regardless of the impetuosity of the current; and though the water penetrates her nest, she hatches her eggs in that wet condition.

## THE GREBE.

THIS bird is much larger than either of the former, and its plumage is white and black. It differs also in the shortness of its legs, which are made for swimming, and not walking: they are hid in the belly of the bird, and consequently have very little motion.

In England these birds are chiefly seen to frequent the marshes of Cheshire and Shropshire; where they breed, in a floating nest, among reeds and flags. It is never seen on land, and though ever so often disturbed, will not leave that lake where alone, by diving and swimming, it can find food and security. It is chiefly sought for the skin of its breast, the plumage of which is of a beautiful silvery white, and as glossy as satin.

As these birds are from the shortness of their wings, ill-formed for flying, and from the uncommon shortness of their legs, utterly unfitted for walking, they seldom leave the water, and chiefly frequent those broad shallow pools where their faculty of swimming can be turned to the greatest advantage in fishing and seeking their prey.

Of the grebe kind there are about thirteen species.

The **EARED GREBE** is the size of a teal, and is distinguished by a tuft of orange-coloured feathers springing up from behind each eye. It is a native of Siberia.

The **RED-NECKED GREBE** is still more beautiful, the chin being of a pale ash-colour, the rest of the neck of a reddish chesnut.

The **CRESTED GREBE** is the most common.

## CHAPTER VI.

## WEB-FOOTED WATER FOWL.

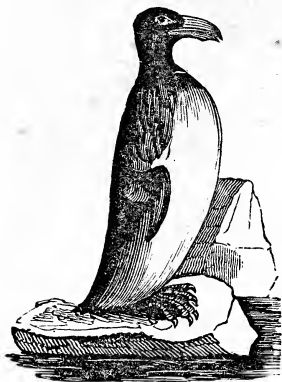
The *Auk*—The Great Auk—The Razor Bill—The Black-billed Auk—The Puffin—The Little Auk—The Tufted Auk—The *Guillemot*—The Foolish *Guillemot*—The *Diver*—The Great Northern Diver—The Speckled Diver—The *Tern*—The Great Tern—The *Duck*—The Goose—The Wild Duck, &c.—The *Petrel*—The Fulmar—The Stormy Petrel—The *Gull*—The Black-backed Gull—The Skua Gull—The Common Gull—The *Arganser*—The Gooseander—The *Pelican*—The Corvoraunt—The Gannet—The Booby—The *Avoset*—The Scooping Avoset—The American Avoset—The *Flamingo*—The *Albatross*—The *Skimmer*—The *Penguin*—The Patagonian Penguin—The Magellanic Penguin—The Crested Penguin—The *Tropic Bird*—The *Black bellied Darter*.

## THE AUK.

THIS is the first European bird of the web-footed fowls which naturalists introduce to our notice. The whole tribe is distinguished peculiarly by the form of the bill, which is strong, convex, compressed at the sides, in general crossed with several furrows, and in some degree resembling the coulter of a plough.

The GREAT AUK is the size of a goose; its bill is black, about four inches and a quarter long, and covered at the base with short velvet-like feathers. The upper parts of the plumage are black, and the lower parts white. Its wings are too short for flight, but swims and dives well. It feeds on the lump-fish and others of the same size; and is frequent on the coasts of Newfoundland, Greenland, Norway, &c. This bird is also a very bad walker. It is also observed by seamen, that it is never seen out of sound-

ings, so that its appearance serves as an infallible direction to land. It lays its eggs close to the sea mark. The following is a specimen of the Great Auk.



The **RAZOR-BILL** is not above half the size of the great auk, which it resembles both in form and plumage, except that it has the use of its wings, and lays its egg (for each of these species lay but one) on the bare top of a precipice, and fastens it by a cement to prevent its rolling off. It is pretty common on the coasts of England during the summer season.

The **BLACK-BILLED AUK** is still smaller.

The **PUFFIN** weighs about twelve ounces, and is twelve inches in length. The bill is much compressed: the half next the point is red; that next the



base is blue grey; it has three furrows impressed in it; one in the livid part, two in the red. The eyes are fenced with a protuberant skin, of a livid colour; they are grey, or ash-coloured.

The puffin, like all the rest of the kind, has its legs thrown so far back, that it can hardly move without tumbling. This makes it rise with difficulty, and subjects it to many falls, before it gets upon the wing; but as it is a small bird, when it once rises, it can continue its course with great celerity.

All the winter these birds are absent, visiting regions too remote for discovery. At the latter end of March, or the beginning of April, come over their spies or harbingers, that stay two or three days, to view and search out their former situations. This done, they once more depart, and about the beginning of May, return again with the whole army of their companions. But if the season happens to be stormy and tempestuous, the unfortunate voyagers undergo incredible hardships; and they are found, by hundreds, cast away upon the shores, lean and perished with famine.

The puffin, when it prepares for breeding, seeks to burrow into the earth under a stone, where it expects to rest in the greatest security. In this retreat it lays one egg; which, though the bird itself is not much bigger than a pigeon, is of the size of a hen's.

The **LITTLE AUK** is still less than the puffin, being not above the size of a blackbird.

Of the foreign birds of this genus, the **TUFTED AUK**, which is found at Kamtschatka, is one of the most remarkable. It is somewhat bigger than the puffin, and is distinguished by a tuft of feathers, four inches in length, which arises over each eye, and falls elegantly on each side of the neck.

There are about twelve species of the auk, foreign and domestic.



### THE GUILLEMOT

Is nearly allied to the preceding genus, but it wants the characteristic bill, which in this genus is slender, long, and pointed.

The **FOOLISH GUILLEMOT** is the largest species with which we are acquainted. It weighs about twenty-four ounces, and is seventeen inches long. The head, neck, back, wings, and tail, are of a deep mouse-colour; the tips of the lesser quill-feathers, and all the under parts of the plumage, are white. They accompany the auk in its visits to our shores, and are such foolish birds, that they will not quit the rock, though they see their companions killed around them.

### THE DIVER.

**THIS** genus includes about seven species, foreign and domestic.

The GREAT NORTHERN DIVER weighs sixteen pounds, and is three feet six inches long. The head and neck are velvet black, with a crescent immediately under the throat, and another behind. The upper parts of the plumage are also black, spotted with white, and the breast and belly perfectly white. This bird is found in all the northern parts of Europe, and feeds on fish. It flies high and well.

The SPECKLED DIVER is called on the Thames the *sprat loon*. It weighs about two pounds and a half, and has the upper parts of the body dusky, spotted with white, the breast and belly white. It is so confident of its skill in diving, that it often approaches very near the boats, when fishing for sprats or herrings.

### THE TERN.

OF this genus there are about twenty-three different species, which are all distinguished by their forked tails.

The GREAT TERN is about fourteen inches long, and weighs four ounces and a quarter. The bill and feet are a fine crimson, the former tipped with black, and very slender. The back of the head is black; the upper part of the body is pale grey, and the under part white. These birds have been called sea swallows, as they appear to have all the same actions at sea that the swallow has on land; seizing every insect which appears on the surface, and darting down upon the smaller fishes with surprising rapidity.

### THE DUCK.

OF this genus there are about one hundred species, infinitely differing in size and plumage; many

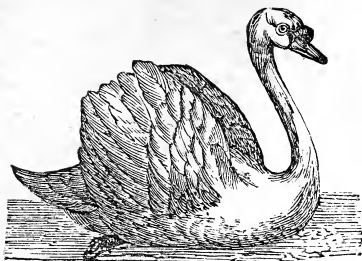
of them are rendered domestic, but a still greater proportion are in their native untamed state. All these species are distinguished by their strong, flat bills, furnished at the end with an additional piece, termed a nail, and marked at the edges with lamellæ, or teeth.

Though these birds do not reject animal food when offered them, yet they can contentedly subsist upon vegetables, and seldom seek any other. They breed in great abundance, and lead their young to the pool the moment they are excluded.

As their food is simple, so their flesh is nourishing. The swan was considered as very delicate food among the ancients, by whom the goose was reprobated as wholly indigestible. The goose, however, is now become the favourite, while the swan is seldom brought to table.

The SWAN.—There are two varieties of this beautiful bird, the wild and the tame. The wild swan is less than the tame, almost a fourth; for, as the one weighs twenty pounds, the other weighs sixteen pounds and three quarters. The colour of the tame swan is all over white; that of the wild bird is along the back, and the tip of the wings, of ash-colour; the tame swan is mute, the wild one has a sharp, loud cry, particularly while flying. But these are slight differences, compared to what are found in dissection.

The wild species is found in most of the northern regions, in America, and probably in the East Indies.

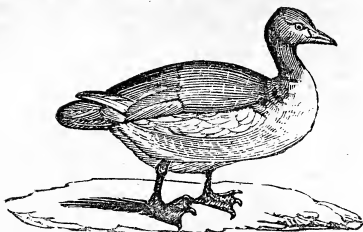


## THE SWAN.

The **TAME SWAN** is too well known to require a description. It is the largest of British birds, and the most majestic and picturesque, when exercising its natural propensities in the water. It lays seven or eight eggs, which it is nearly two months in hatching. It subsists chiefly on aquatic plants and roots, but will eat insects and grain.

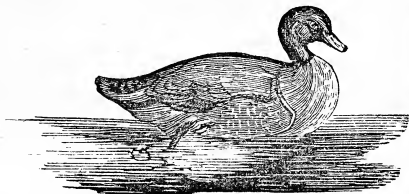
The swan is said to be remarkable for its longevity. A goose has been known to live a hundred years; and the swan from its superior size, and from its firmer flesh, may naturally be supposed to live still longer.

The **GOOSE**, in its domestic state, exhibits a variety of colours; but the wild goose always retains the same marks; the whole upper part is ash-coloured; the breast and belly are of a dirty white; the bill is narrow at the base, and at the tip it is black; the legs are of a saffron colour, and the claws are black. It frequently weighs about ten pounds.



### THE TAME GOOSE.

The wild goose is supposed to breed in the northern parts of Europe; and in the beginning of winter, to descend into more temperate regions. Their flight is very regularly arranged; they either go in a line, a-breast, or in two lines, joining in an angle in the middle.



### THE TAME DUCK.

The TAME DUCK is the most easily reared of all our domestic animals.

The WILD DUCK, or *mallard*, differs in many respects from the tame; and in them there is a still greater variety than among the domestic kind. The most obvious distinction between the wild and tame ducks is in the colour of their feet; those of the tame duck being yellow; and those of the wild duck black. The difference between wild ducks among each other, arises as well from their size as the nature of the place they feed in. Sea ducks, which feed in the salt water, and dive much, have a broad bill, bending upwards, a large hind toe, and a long blunt tail. Pond ducks, which feed in plashes, have a straight and narrow bill, a small hind toe, and a sharp-pointed train. The former are called by our decoy-men, foreign ducks; the latter are supposed to be natives of England.

In this tribe may be added the *eider duck*, which is double the size of a common duck; the *velvet duck*, not so large; the *scoter duck*, or *black diver*; the *tufted duck*; the *mallard*, which is the stock whence our tame breed has probably been produced; lastly, the *teal*, which is the smallest of this kind, with the head and upper part of the neck of a bright bay.

These, which are a few of the most common birds of the duck kind among ourselves, and many others might be added, were an enumeration of names adding to the benefit of the reader.

All these live in the manner of our domestic ducks, keeping together in flocks during the winter, and flying in pairs in summer. Their nests are generally placed near the water, among heaths or rushes, and they lay twelve or fourteen eggs before they commence the task of incubation.

The eider duck is particularly careful to protect her eggs from the coldness of the air. She plucks

off the finest down from her own breast, thus furnishing the inside of her nest with a tapestry more valuable than the most skilful artists can produce.

Should the natives discover the nest, they take away the down and the eggs; after this the female begins to lay afresh, and covers her eggs with new down; and on being again robbed, once more lays, the drake supplying her with down from his body; but in case of further depredation they both forsake the place, and breed there no more.

Those wild ducks which visit us at the approach of winter, as soon as they arrive, fly about in quest of a proper residence. In the choice of this they have two objects in view; plenty of food and security from molestation. For this purpose they prefer lakes in the vicinity of marshes and thickets, where insects are most abundant, and where they can have a speedy retreat in case of annoyance. But notwithstanding all their care, the fowlers make terrible havoc among them; and decoy ducks are tamed to inveigle them into nets. It is said that upwards of thirty thousand ducks have been sent up to London market, in the course of one season, from ten decoys in the neighbourhood of Wainfleet.

## THE PETRELS

ARE all known by having instead of a back toe, only a sharp spur or nail; they have also a faculty of spouting from their bills, to a considerable distance, a large quantity of pure oil, which they do by way of defence, into the face of any person who attempts to take them.

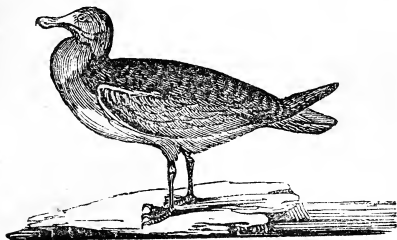
The **FULMAR** is the largest of the kind which is known in these climates. It is superior to the size of the common gull, being fifteen inches in length,



and in weight seventeen ounces. The bill is very strong, yellow, and hooked at the end. The head, neck, and all the under parts of the body are white; the back and wings ash-coloured, the quills dusky, and the tail white. It feeds on the blubber of whales, which supplies the reservoir, whence it spouts, with a constant stock of ammunition.

The STORMY PETREL is about the size of a house swallow. The general colour of the plumage is black, except about the rump, which is white. They are very clamorous, and are called by the sailors, *Mother Cary's chickens*, who observe that they never settle or sit upon the water, but when stormy weather is to be expected. They are found in most parts of the world.

There are about twenty species of foreign birds of of this kind.



THE GULL,

AND all its varieties, is well known to most readers. It is seen with slow-sailing flight hovering over rivers, to prey upon the smaller kinds of fish: it is seen following the ploughman in fallow fields to

pick up insects; and when living animal food is not to be found, it has even been known to eat carrion, and whatever else offers of the same kind.

The **BLACK-BACKED GULL** derives its name from having the upper part of the back and wings black, the rest of the body being a perfect white. It is the largest species with which we are acquainted. It weighs near five pounds, is twenty-nine inches in length, and in the extent of its wings five feet nine inches. It is common in England, and in all the north of Europe. In America, it is called the *old wife*.

The **SKUA GULL** is the size of a raven. The upper parts of the head, neck, back, and wings, are deep brown; the under parts a pale rusty ash-colour. The legs are black, rough, and warty, and the talons very strong and hooked. It is mostly a native of the North, though often found in England. It is a most formidable bird, as it not only preys upon fish, but upon all the smaller water-fowl, and even upon young lambs.

The **COMMON GULL** is seventeen inches long, and weighs one pound. The bill is yellow; the back and wings a pale grey, and the head and rest of the body white.

The jelly-like substance known by the name of *star-thot*, or *star-jelly*, owes its origin to some of these birds, being nothing but the half-digested remains of earth-worms, on which they feed, and often discharge from their stomachs.

The gull genus, like all other rapacious birds, lay but few eggs; and hence, in many places, their number is daily seen to diminish. Most of the kind are fishy tasted, with black stringy flesh.

The gull, the petrel, the tern, have all nearly the same habits, the same nature, and are caught in the

same manner, that is, at the most imminent risk, and with the loss of many lives in the course of a season.

Of the gull there are about nineteen species.

### THE MERGANSER.

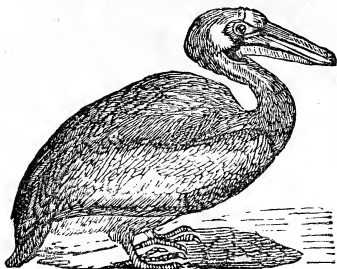
THIS genus includes only about six species, in all of which the bill is slender, and furnished at the end with a crooked nail, and grated or toothed both in the upper and under chap like a saw.

The largest of the kind is the GOOSEANDER, which weighs about four pounds. The bill is red; the head very full of feathers on the top and back part. The plumage is various and beautiful. Its manners and appetite entirely resemble those of the diver. It feeds upon fish, for which it dives; and is said to build its nest upon trees, like the heron and the corvora.

### THE PELICAN.

THE common pelican is considerably larger than a swan, and nearly of the same shape and colour. The chief peculiarity of the pelican consists in its enormous bill, which is fifteen inches long, and the extraordinary pouch underneath. From the lower edges of the under chap is suspended a large bag, reaching its whole length; and said to be capable of containing fifteen quarts of water. This appendage the bird is capable of contracting or distending at pleasure. When the pelican has been successful in fishing, this pouch becomes dilated to an incredible extent; for the first occupation of the bird on such occasions is to replenish its bag, after which it retires to feed at leisure. This bag is said to be capable of

concealing as many fish as would satisfy six hungry men. The opening of the pelican's mouth is placed at some distance behind its eyes.



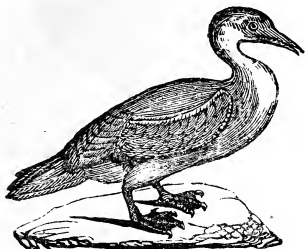
Such is the formation of this extraordinary bird, which is a native of Africa and America. It was also once known in Europe, particularly in Russia, but it seems to have deserted our coasts.

The pelican is not incapable of receiving instruction in a tame state. A naturalist affirms, that he had seen one that would go off in the morning, and return before night to its master with its pouch full of plunder, part of which it would unload for the proprietor's use, and part it retained for its own sustenance.

Gessner tells us that the Emperor Maximilian had a tame pelican, which lived for about eighty years, and which always attended his army on their march.

The CORVORANT is about the size of a large Muscovy duck, and may be distinguished by its four toes

being united by membranes together; and by the middle toe being toothed, or notched, like a saw, to assist in holding its fishy prey. The head and neck of this bird are of a sooty blackness, and the body thick and heavy, more inclining in figure to that of the goose than the gull. They are most remarkably voracious, and have a most sudden digestion. Their appetite is for ever craving, yet never satisfied.



The GANNET, or *solana* goose, is of the size of a tame goose, but its wings are much longer. The bill is six inches long, inclining down at the tip, and the sides are irregularly jagged, in order to give a firmer hold of its prey. From the corner of the mouth proceeds a narrow slip of black bare skin, extended to the hind part of the head, and beneath this is a dilatable pouch, like that of the pelican, capable of containing five or six entire herrings, which, in the breeding season, it carries at once to its mate or its young. The colour is chiefly white.

These birds are very numerous in the Skelig Islands, in Ireland, some of the Hebrides, and the Ferro-

between Scotland and Norway. But it is in the Bass Island, in the Frith of Forth, that they are seen in the greatest numbers. They lay only one egg at a time ; and never more than three in a season, should they be robbed of their first and second.

The young gannet is considered a great dainty by the Scots, and sold very dear.

The BOOBY is also a species of the pelican. The upper parts of the plumage are brown, the breast and belly white. It is found in several parts of America, and is described as a very simple bird.

### THE AVOSET.

THIS bird is easily distinguished from all other birds by the form of its bill, which is very thin, slender, and bends considerably upwards.

### THE FLAMINGO

Is a tall and bulky, but very beautiful bird. The body, which is scarlet, is about the size of a swan : but the neck and legs are of such an extraordinary length, that when it stands erect, it is upwards of six feet high. Its wings, extended, are five feet six inches from tip to tip ; and it is four feet eight inches from tip to tail. The head is round and small, with a large bill seven inches long, partly black, and crooked like a bow. The legs and thighs, which are not much thicker than a man's finger, are about two feet eight inches high ; and its neck near three feet long. The feet are feeble, and united by membranes, as in those of a goose. Of what use these membranes are, does not appear, as the bird is never known to swim, its legs and thighs being sufficient to bear it into those depths where it seeks for prey.



This bird was known on all the coasts of Europe, but is now chiefly found in America, and some parts of Africa. The peculiar delicacy of its flesh, when young, together with its beauty and magnitude, have afforded such incitements for its destruction, that it has long abandoned the shores frequented by man. In some of the wild and solitary tracts of America, it lives in a state of society, and under a polity, which excites our admiration.

When flamingoes are seen by mariners, they always appear drawn up in a close line of two or three hundred together, and exhibit at the distance of half a mile, the exact representation of a long brick wall.

When they disperse, to seek for food, they station one of their number to give the signal of any approaching danger. As soon as this sentinel perceives the slightest signs of annoyance, he screams with a voice as loud as a trumpet, and instantly the whole flock are on the wing.

### THE COURIER

Is an Italian bird, somewhat less than the avoset, the bill is shorter, straight, and yellow. The upper parts of the plumage of a rusty brown, the under parts white. It derives its name from being so remarkably swift in running.

### THE ALBATROSS

Is one of the largest and most formidable birds of Africa and America.

The WANDERING ALBATROSS is rather larger than a swan, its wings, when extended, ten feet from tip to tip. The bill is six inches long, yellowish, and terminates in a crooked point. The top of the head is of a bright brown; the back is of a dirty, deep spotted brown; and the belly and under the wings is white. The toes are of a flesh colour, and are webbed.

This bird is an inhabitant of the tropical climates, and also beyond them, as far as the Straits of Magellan in the South Seas. It eats fish, and also such small water-fowl as it can take by surprise. It preys upon the wing, and chiefly pursues the flying fish that are forced from the sea by the dolphins.

There are about three other species of albatross, all smaller than the preceding.



## THE SKIMMER

Is about twenty inches in length, and three feet seven inches broad. The bill is of a very singular structure, the upper chap or mandible, being above an inch shorter than the under, and the upper shuts into it as a razor into its handle. The base of the bill is red, and the other parts black. The forehead, chin, and all the under parts are white; the upper parts of the plumage black, with a bar of white across each wing. The tail is short and forked. It inhabits all parts of America; is commonly on the wing, and skims along the surface to catch the small fish, on which it feeds. It is very frequently known by the name of the *Razor-bill*.

## THE PENGUIN.

THIS genus includes about nine species, which seem to hold the same place in the southern parts of the world, as the auk does in the north, neither of them having ever been observed within the tropics. The wings of the larger species do not enable them to rise out of the water, but serve them rather as paddles to help them forward, when they attempt to move swiftly; and in a manner walk along the surface of the water. Even the smaller kind seldom fly by choice; they flutter their wings with the swiftest efforts, without making way; and though they have but a small weight of body to sustain, yet they seldom venture to quit the water, where they are provided with food and protection.

As the wings of the penguin tribe are unfitted for flight, the legs are still more awkwardly adapted for

walking. The whole tribe have all above the knee hid in the belly; and nothing appears but two short legs, or feet, as some would call them, that seem stuck under the rump, and upon which the animal is very awkwardly supported. They seem when sitting, or attempting to walk, like a dog that has been taught to sit up, or to move a minuet. Their short legs drive the body in progression from side to side; and were they not assisted by their wings, they would scarcely move faster than a tortoise.

This awkward position of the legs, which so unqualifies them for living upon land, adapts them admirably for a residence in water; in that the legs placed behind the moving body, pushes it forward with greater velocity; and these birds, like the Indian canoes, are the swiftest in the water, by having their paddles in the rear.

They are also covered more warmly all over the body with feathers, than other birds, so that the sea seems entirely their element.

The PATAGONION PENGUIN weighs about forty pounds, and is four feet three inches in length. The bill measures four inches and a half, but is slender. The head, throat, and hind part of the neck are brown, the back of a deep ash-colour, and all the under parts white.

The MAGELLANIC PENGUIN is about the size of a goose; the upper parts of the plumage are black, and the under white. These birds walk erect, with their heads on high, their fin-like wings hanging down like arms, so that to see them at a distance, they look like so many children with white aprons. Hence they are said to unite in themselves the qualities of men, fowls, and fishes. Like men, they are upright; like fowls, they are feathered; and like fishes, they have fin-like instruments, that beat the

water before, and serve for all the purposes of swimming rather than of flying.

There are CRESTED PENGUINS at Faulkland's Island, which are very beautiful birds; and there is a species inhabiting New Zealand not larger than a teal.

All the species feed upon fish; and seldom come ashore, except in the breeding season. Their flesh is rank and fishy.

In some, the flesh is so tough, and the feathers so thick, that they stand the blow of a scimitar without injury.

The Penguin lays but one egg; and in frequented shores, is found to burrow like a rabbit; sometimes three or four take possession of one hole, and hatch their young together. The egg of the penguin is very large for the size of the bird, that of the smaller sort being generally found larger than that of a goose.

## THE TROPIC BIRD

INCLUDES only three known species, which are all distinguished by a wedge-like tail, the two middle feathers extending a vast length beyond the others.

The COMMON TROPIC BIRD is about the size of a pigeon. The length to the tip of the long feathers is nearly three feet. The bill is three inches long, and red. The head, neck, and under parts of the belly are quite white; the upper part of the plumage white also, but marked with black lines. The two middle feathers of the tail measure twenty inches, and project fifteen inches beyond the rest. It takes its name from being chiefly found within the tropics. It frequently flies very high, but generally attends upon the flying fishes in their escape from their wa-

tery enemies. Their flesh is not good, but is sometimes eaten by the sailors.

### THE BLACK-BELLIED DARTER

Is the size of a common duck. It is distinguished by a peculiarly long and slender neck. In the islands of Ceylon and Java it sits on the shrubs that hang over the water. In a country where people are so apprehensive of serpents, it often terrifies the passengers by darting out its long and slender neck, which in their surprise they mistake for the attack of some fatal reptile.

## PART III.

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### CHAPTER I.

Cetaceous Fishes.—The *Whale*—the Fin Fish—the Nar-whale, or Sea Unicorn—the Cachalot, or Spermaceti Whale—the Grampus, Dolphin, and Porpise.

THE number of fish to which we have given names, and with the figure of which, at least, we are a little acquainted, is, according to Linnæus, above four hundred. The majority of these are confined to the sea, and would expire in fresh water, though there are a few which annually swim up the rivers to deposit their spawn.

The chief instruments of a fish's motion are the fins, which in some fish are more numerous than in others. The fish, in a state of repose, spreads all its fins, and seems to rest upon its pectoral\* and ventral† fins near the bottom; if the fish folds up, for it has the power of folding either of its pectoral fins, it inclines to the same side; folding the right pectoral fin, its body inclines to the right side; folding to the left fin, it inclines to that side in turn. When the fish desires to have a retrograde motion, striking with the pectoral fins in a contrary direction will effectually produce it. If the fish desires to turn, a blow

\* Those near the gills.      † The belly fins.

from the tail sends it about ; but if the tail strike both ways, then the motion is progressive. In pursuance of these observations, if the dorsal\* and the ventral fins be cut off, the fish reels to the right and left, and endeavours to supply its loss by keeping the rest of its fins in constant employment. If the right pectoral fin be cut off, the fish leans to that side ; if the ventral fin on the same side be cut away, then it loses its equilibrium entirely. When the tail is cut off, the fish loses all motion, and gives itself up to where the water impels it.

The senses of fishes are remarkably imperfect, and, indeed, that of sight is almost the only one which, in general, they may be truly said to possess. But this is in some degree compensated by their astonishing longevity, several species being known to live more than a hundred years. Their longevity is still exceeded by their singular fecundity ; for a single cod, for instance, produces at a birth as many young ones as there are inhabitants in all Great Britain—above nine millions. The flounder produces at once above a million, and the mackarel five hundred thousand.

The spawn continues in its egg state in some fishes longer than in others, and this generally in proportion to their size. The young of the salmon continues in egg from December to April ; the carp three weeks, and the little gold fish, from China, is produced still quicker. The young spawn are the prey of the inhabitants of the water, even of their own parents, and scarcely one in a thousand escapes the numerous perils of its youth.

Such is the general picture of these heedless and and hungry creatures ; but there are some in this class living in the waters, that are possessed of finer organs and higher sensations ; that have all the ten

\* Back fins.

derness of birds or quadrupeds for their young; that nurse them with constant care, and protect them from every injury. Of this class are the cetaceous order, or the fishes of the whale kind. There are others, though not capable of nursing their young, yet that bring them alive into the world, and defend them with courage and activity. These are the cartilaginous kinds, or those which have gristles instead of bones. But the fierce, unmindful tribe we have been describing, that leave their spawn without any protection, are called the spinous, or bony kinds, from their bones resembling the sharpness of thorns

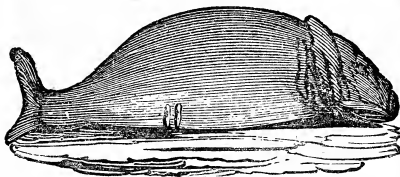
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## CETACEOUS FISHES.

THIS tribe is composed of the *whale*, the *cachalot*, the *dolphin*, the *grampus*, and the *porpoise*. All these resemble quadrupeds in their internal structure, and in some of their appetites and affections. Like quadrupeds, they have lungs, a midriff, a stomach, intestines, liver, spleen, bladder, and parts of generation; their heart also resembles that of quadrupeds, with its partitions closed as in them, and driving red and warm blood in circulation through the body; and to keep these parts warm, the whole kind are also covered, between the skin and the muscles, with a thick coat of fat or blubber.

As these animals breathe the air, it is obvious that they cannot bear to be any long time under water. They are constrained, therefore, every two or three minutes, to come up to the surface to take breath, as well as to spout out through their nostril, for they have but one, that water which they sucked in while gaping for their prey.

But it is in the circumstances, in which these animals continue their kind, that they shew an eminent degree of superiority. Other fish deposit their spawn, and leave their success to accident; these never produce above one young, or two at the most; and this the female suckles entirely in the manner of quadrupeds, her breasts being placed as in the human kind, above the navel. Their tails, also, are different from those of all other fish; being placed so as to lie flat upon the surface of the water, while the other kinds have them upright or edgeways. This flat position of the tail enables them to force themselves suddenly to the surface of the water to breathe which they are continually constrained to do.



### THE WHALE.

OF the whale, properly so called, there are no less than seven different kinds; all distinguished from each other by their external figure, or internal conformation. The *great Greenland whale*, without a back-fin, and black on the back; the *Iceland whale*, without a back-fin, and whitish on the back; the *New England whale*, with a hump on the back; the *whale with six humps on the back*; the *fin-fish*, with



a fin on the back near the tail; the *p'ike-headed whale*, and the *round-lipped whale*. All these differ from each other in figure, as their names obviously imply. They differ also somewhat in their manner of living; the fin-fish having a larger swallow than the rest; being more active, slender, and fierce, and living chiefly upon herrings.

The GREAT GREENLAND WHALE is the fish for taking which there are such great preparations made in different parts of Europe. It is a large, heavy animal, and the head alone makes a third of its bulk. It is easily found from sixty to seventy feet long. The fins on each side are from five to eight feet, composed of bones and muscles, and sufficiently strong to give the great mass of body which they move, speed and activity. Their tail is twenty-four feet broad, and when the fish lies on one side, its blow is tremendous. The skin is smooth and black, and, in some places, marbled with white and yellow; which, running over the surface, has a very beautiful effect.

The outward, or scarf skin of the whale, is no thicker than parchment: but this removed the real skin appears of about an inch thick, and covering the fat or blubber that lies beneath; this is from eight to twelve inches in thickness; and is, when the fish is in health, of a beautiful yellow. The muscles lie beneath, and these, like the flesh of quadrupeds, are very red and tough.

The cleft of the mouth is twenty feet long, which is near one-third of the animal's length, and the upper jaw is furnished with barbs, that lie, like the pipes of an organ, the greatest in the middle, and the smallest on the sides. These compose the whale-bone, the longest spars of which are found to be not less than eighteen feet. The tongue is almost

immoveably fixed to the lower jaw, seeming one great lump of fat; and, in fact, it fills several hogsheds with blubber. The eyes are not larger than those of an ox; and when the crystalline humour is dried, it does not appear larger than a pea. They are placed towards the back of the head, being the most convenient situation to enable them to see both before and behind; so also to see over them, where their food is principally found. They are guarded by eye-lids and eye-lashes, as in quadrupeds; and they seem to be very sharp-sighted.

Nor is their sense of hearing in less perfection; for they are warned at a great distance, of any danger preparing against them. We have already observed that the substance, called whale-bone, is taken from the upper jaw of the animal, and is very different from the real bones of the whale. The real bones are hard, like those of great land animals, are very porous, and filled with marrow. Two great strong bones sustain the top lip, lying against each other in the shape of a half moon; some of these are twenty feet long; they are seen in several gardens set up against each other, and are often mistaken for the ribs.

The fidelity of these animals to each other exceeds even the constancy of birds. We are informed by Anderson, that some fishers, having struck one of two whales, a male and a female, that were in company together, the wounded fish made a long and terrible resistance; it struck down a boat with three men in it, with a single blow of the tail, by which all perished. The other still attended its companion, and lent it every assistance; till at last, the wounded fish sunk under the number of its wounds, while its faithful associate, disdaining to survive the loss, with great bellowing stretched itself upon the dead fish, and shared the same fate.

The whale goes with young nine or ten months, and is at that time fatter than usual, particularly when about to bring forth. The young ones are called by the sailors *short-heads*, while they continue at the breast, which is about a year: they are then extremely fat, and yield above fifty barrels of blubber. The mother, at the same time, is equally lean and emaciated. At the age of two years they are called *stunts*, as they do not thrive much immediately on quitting the breast; they then yield scarce above twenty, or twenty-four barrels of blubber. From that time forward they are called *skull-fish*, and their age is wholly unknown.

The food of the whale is a small insect that is seen floating in those seas, and which is called by Linnæus, the medusa. These insects are of the size of a small bean, and the colour is black; they are sometimes seen floating on the surface of the water. They are of a round form, like snails in a box, but they have wings which are so tender, that it is scarce possible to touch them without breaking. These, however, serve rather for swimming than flying. They have the taste of raw muscles, and have the smell of burnt sugar. Inoffensive as the whale is, it is not without enemies. There is a small animal of the shell-fish kind, called the whale-louse, that sticks to the body, as we see shells sticking to the bottom of a ship. This insinuates itself chiefly under the fins; and whatever efforts the whale makes, it still keeps its hold, and lives upon the fat, which it is provided with instruments to arrive at.

There is another and more powerful enemy, called by the fishermen of New England, the killer. This is itself supposed to be a cetaceous animal, armed with strong and powerful teeth. A number of these are said to surround the whale in the same manner

as dogs get round a bull. Some attack it with their teeth behind; others attempt it before; until at last the great animal is torn down, and its tongue is said to be the only part they devour when they have made it their prey. They are said to be of such great strength, that one of them alone was known to stop a dead whale that several boats were towing along, and drag it to the bottom.

The sword-fish, however, is the whale's most terrible enemy. Anderson says, "At the sight of this animal, the whale seems agitated in an extraordinary manner, leaping from the water, as if with affright; wherever he appears, the whale perceives it at a distance, and flies from it in the opposite direction. The whale has no instrument of defence except the tail; with that it endeavours to strike the enemy, and a single blow taking place would effectually destroy its adversary; but the sword-fish is as active as the other is strong, and easily avoids the stroke; then bounding into the air, it falls upon its enemy, and endeavours not to pierce with its pointed beak, but to cut with its toothed edges. The sea all about is soon dyed with blood, proceeding from the wounds of the whale; while the enormous animal vainly endeavours to reach the invader, and strikes with its tail against the surface of the water, making a report at each blow louder than the noise of a cannon."

But of all the enemies of these enormous fishes, man is the greatest; he alone destroys more in a year than the rest in an age, and actually has thinned their numbers in that part of the world where they are chiefly sought. At the first discovery of Greenland, whales, not being used to be disturbed, frequently came into the very bays, and were accordingly killed almost to the very shore; so that the blubber being cut off was immediately boiled into oil upon

the spot. The ships in those times took in nothing but the pure oil and the whalebone, and all the business was executed in the country; by which means a ship could bring home the product of many more whales than she can according to the present method of conducting this trade. The fishery also was then so plentiful, that they were obliged sometimes to send other ships to fetch off the oil they had made, the quantity being more than the fishing ships could bring away. But time and change of circumstances have shifted the situation of this trade. The ships coming in such numbers from Holland, Denmark, Hamburgh, and other northern countries, all intruders upon the English, who were the first discoverers of Greenland, the whales were disturbed, and gradually forsaking the place, were not to be killed so near the shore as before; but are now found, and have been so ever since, in the opening and space among the ice, where they have deep water, and where they go sometimes a great many leagues from shore.

The manner of taking the whale at present is as follows:—

Every ship is provided with six boats, to each of which belong six men for rowing the boat, and an harpooner, whose business is to strike the whale with his harpoon. Two of these boats are kept constantly on the watch, at some distance from the ship, fastened to pieces of ice, and are relieved by others every four hours. As soon as a whale is perceived, both the boats set out in pursuit of it; and if either of them can come up before the whale finally descends, the harpooner discharges his harpoon at him. There is no difficulty in choosing the place where the whale is to be struck, as some have asserted; for these creatures only come up to the surface in order to spout the water, or *blow*, as the fishermen term it, and

therefore always keep the soft and vulnerable parts of their bodies above water.\*

As soon as the whale is struck, the men set up one of their oars in the middle of the boat as a signal to those in the ship. On perceiving this, the watchman alarms all the rest with the cry of *fall! fall!* upon which all the other boats are immediately sent out to the assistance of the first.

The whale, finding himself wounded, runs off with prodigious violence. Sometimes he descends perpendicularly; at others goes off horizontally, at a small depth below the surface. The rope which is fastened to the harpoon is about 200 fathoms long, and perfectly coiled up, that it may freely be given out as there is a demand for it. At first, the velocity with which this line runs over the side of the boat is so great, that it is wetted to prevent its taking fire: but in a short time the strength of the animal begins to fail, and the fishermen, instead of letting out more rope, strive as much as possible to pull back what is given out already. If he runs out the 200 fathoms of line contained in one boat, that belonging to another is immediately fastened to the end of the first, and so on; and there have been instances where all the rope belonging to the six boats has been necessary, though half that quantity is seldom required. The whale cannot stay long under water, but again comes up to blow; and being now much fatigued and wounded, stays longer above water than usual. This gives another boat time to come up with him, and he is again struck with a harpoon. He again

\* An improvement has been made in the method of discharging the harpoon: that is, by shooting it out of a kind of swivel or musketoon; but it does not appear that they have had better success since this invention, than before.

descends, but with less force than before; and when he comes up again, is generally incapable of descending, but suffers himself to be wounded and killed with long lances which the men are provided with for the purpose. He is known to be near death when he spouts up the water deeply tinged with blood.

The whale being dead, is lashed alongside the ship. They then lay it on one side, and put two ropes, one at the head, and the other in the place of the tail, which, together with the fins, is struck off as soon as he is taken, to keep these extremities above water. On the offside of the whale are two boats to receive the pieces of fat, utensils, and men, that might otherwise fall into the water on that side. These precautions being taken, three or four men, with iron at their feet, to prevent slipping, get on the whale, and begin to cut out pieces of about three feet thick and eight long, which are hauled up at the capstan or windlass. When the fat is all got off, they cut off the whiskers of the upper jaw with an axe. Before they cut, they are lashed to keep them firm; and after all is got off, the carcass is turned adrift, and devoured by the bears, who are very fond of it. In proportion as the large pieces of fat are cut off, the rest of the crew are employed in slicing them smaller, and picking out all the lean. When this is prepared, they stow it under the deck, where it lies till the fat of all the whales is on board; then cutting it still smaller, they put it up in casks in the hold, cramming it very full and close. Nothing now remains but to sail homewards, where the fat is to be boiled and melted down into train oil.

The flesh of this animal is a dainty to some nations; and the savages of Greenland, as well as those near the south pole, are fond of it to distraction. They

eat the flesh, and drink the oil, which is a first-rate delicacy. The finding a dead whale is an adventure considered among the fortunate circumstances of their wretched lives. They take up their abode beside it, and seldom remove till they have left nothing but the bones.

### THE NARWHALE, OR SEA UNICORN,

Is not so large as the whale, not being above sixty feet long. Its body is slenderer than that of the whale, and its fat not in so great abundance. But this great animal is sufficiently distinguished from all others of the deep by its teeth, which stand pointing directly forward from the upper jaw, and are from twelve to fourteen feet long. This terrible weapon is generally found single; and some are of opinion that the animal is furnished with but one by nature; but there is at present the skull of a narwhale at the Stadthouse at Amsterdam, with two teeth. The tooth, or, as some are pleased to call it, the horn of the narwhale, is as straight as an arrow, about the thickness of the small of a man's leg, wreathed in the manner we sometimes see twisted bars of iron; it tapers to a sharp point, and is harder, heavier, and whiter than ivory. It is generally seen to spring from the left side of the head directly forward, in a straight line with the body; and its root enters into the socket above a foot and a half.

Notwithstanding its formidable appearance, the narwhale is one of the most harmless inhabitants of the deep. It is seen constantly and inoffensively sporting among the other great monsters of the ocean, no way attempting to injure them, but pleased in their company.

The Greenlanders call the narwhale the forerunner



of the whale; for wherever it is seen, the whale is sure to follow shortly after. This may arise as well from the natural passion for society of these animals, as from both living upon the same food, which are the insects described in the preceding section. These powerful fishes make war upon no other living creature. The narwhale is much swifter than the whale, and would never be taken by the fishermen but for those very tusks, which at first appear to be its principle defence. These animals are always seen in herds of several at a time; and whenever they are attacked, they crowd together in such a manner, that they are mutually embarrassed by their tusks. By these they are often locked together, and are prevented from sinking to the bottom. It seldom happens, therefore, but the fishermen make sure of one or two of the hindmost, which very well reward them for their trouble.

### THE CACHALOT, OR SPERMACETI WHALE,

HAS several teeth in the under jaw, but none in the upper. As there are no less than seven distinctions among whales, so also there are the same number of distinctions in the tribe we are describing. This tribe is not of such enormous size as the whale, properly so called, not being above sixty feet long and sixteen high. From their being more slender, they are much more active than the common whale; they remain a longer time at the bottom, and afford a smaller quantity of oil. As in the common whale the head was seen to make a third part of its bulk, so in this species the head is so large as to make one half of the whole. The cachalot is as destructive among the lesser fishes as the whale is harmless; and

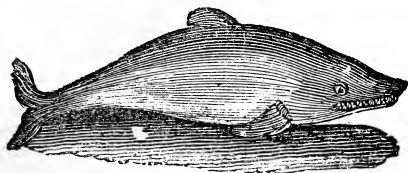
can at one gulph swallow a shoal of fishes down its enormous gullet. Linnæus tells us, that this fish pursues and terrifies the dolphin and porpoise so much as often to drive them on shore.

But, how formidable soever this fish may be to its fellows of the deep, it is by far the most valuable, and the most sought after by man, as it contains two very precious drugs—spermaceti and ambergris; the whole oil of this fish is very easily convertible into spermaceti. This is performed by boiling it with a lye of potash, and hardening it in the manner of soap. Candles are now made of it, which are substituted for wax, and sold much cheaper.

As for the ambergris, which is sometimes found in this whale, it was long considered as a substance found floating on the surface of the sea; but time, that reveals the secrets of the mercenary, has discovered that it chiefly belongs to this animal. The name which has been improperly given to the former substance, seems more justly to belong to this, for the ambergris is found where the seminal vessels are usually situated in other animals. It is found in a bag of from three to four feet long, in round lumps, from one to twenty pounds weight, floating in a fluid rather thinner than oil, and of a yellowish colour. There are never seen more than four at a time in one of these bags: and that which weighed twenty pounds, and which was the largest ever seen, was found single. These balls of ambergris are not found in all the fishes of this kind, but principally the oldest and strongest.

The BLUNT-HEADED CACHALOT is fifty-four feet in length. Its greatest circumference is just beyond the eyes, and is thirty feet. The upper jaw is five feet longer than the lower, which is ten feet. The head is above one third the size of the fish. The end

of the upper jaw is blunt, and near nine feet high, the spout hole placed near the end of it. The teeth are placed in the lower jaw, twenty-three on each side, all pointing outwards, and in the upper jaw, opposite, are a number of holes to receive them when the mouth is closed ; they are about eighteen inches long.



## THE DOLPHIN.

### THE GRAMPUS, DOLPHIN, AND PORPOISE.

ALL these fish have teeth both in the upper and lower jaw, and are much less than the whale.

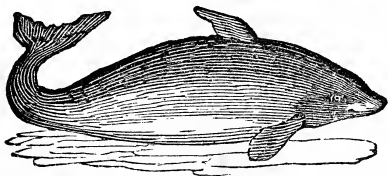
The GRAMPUS, which is the largest, never exceeds twenty feet ; and is also distinguished by the flatness of its head, which resembles a boat turned upside down.

The PORPOISE resembles the grampus in most things ; it is seldom above eight feet long ; its snout also more resembles that of a hog.

The DOLPHIN has a strong resemblance to the porpoise except that its snout is longer and more pointed.

All these fish have fins on the back ; they have all very large heads, like the rest of the whale kind ; and resemble each other in their appetites, their manners, and their conformations ; being equally voracious, active and roving.

The great agility of these animals prevents their being taken. They seldom remain a moment above water ; sometimes, indeed, their too eager pursuits expose them to danger ; and a shoal of herrings often allures them out of their depth. But all this tribe, and the dolphin in particular, are not less swift than destructive. No fish could escape them, but from the awkward position of the mouth, which is placed, in a manner, under the head ; yet, even with these disadvantages, their depredations are so great, that they have been justly styled the plunderers of the deep.



THE PORPOISE.

## CHAPTER II.

OF CARTILAGINOUS FISHES—Of the *Shark*—The White, Blue, Long-tailed, Basking, Hammer-headed, and the Angel Sharks—The Dogfish and its varieties—The Sawfish—The *Ray* Genus—The *Lamprey*—The *Sturgeon*—The Isinglass Fish—The *Angler*—The *Diodon*, or Sunfish—The Oblong, Short, and Globe *Diodon*—The *Lumpsucker*—The Sea Snail—The *Pipe Fish*—The *Hippocampus*—The *Sea Porcupine*—The *Galley Fish*.

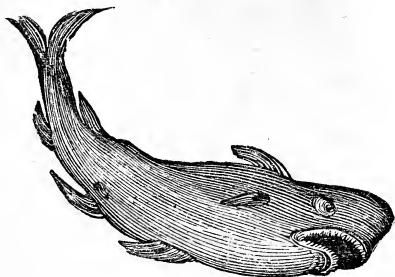
THE first distinction which the cartilaginous tribe of fishes present is, in having cartilages or gristles instead of bones. The size of all the fishes increases with age; but from the pliancy of the bones in this tribe, they seem to have no bounds placed to their dimensions; and it is supposed that they grow larger every day till they die.

Cartilaginous fishes unite the principal properties of both the other classes in their conformation; like the cetaceous tribes, they have organs of hearing, and lungs; like the spinous kinds, they have gills, and a heart without partition.

From this structure of their gills, these animals are enabled to live a longer time out of water than other fishes. The cartilaginous shark, or ray, live some hours after they are taken; while the spinous herring, or mackerel, expire a few minutes after they are brought on shore.

Some of this class bring forth their young alive; and some bring forth eggs, which are afterwards brought to maturity. In all, however, the gestation is nearly the same, for, upon dissection, it is ever found that the young, while in the body, continue in the egg till a very little time before they are excluded: these they may properly be said to hatch within their

body ; and as soon as their young quit the shell, they begin to quit the womb also.



### THE SHARK.

OF all the inhabitants of the deep, those of the shark kind are the fiercest and most voracious.

The **WHITE SHARK** is sometimes seen to rank even among the whales for magnitude ; and is found from twenty to thirty feet long. Some assert that they have seen them of four thousand pounds weight ; and we are told particularly of one, that had a human corpse in his belly. The head is large, somewhat flattened ; the snout long, and the eyes large. The mouth is enormously wide, as is the throat, and capable of swallowing a man with ease. But its furniture of teeth is still more terrible. Of these there are six rows extremely hard, sharp-pointed, and of a wedge-like figure. It is asserted, that there are seventy-two in each jaw, which makes one hundred and forty-four in the whole ; yet others think that their number is

uncertain, and that in proportion as the animal grows older, these terrible instruments of destruction are found to increase. With these the jaws, both above and below, appear planted all over; but the animal has the power of erecting or depressing them at pleasure. When the shark is at rest, they lie flat in his mouth; but when he prepares to seize his prey, he erects all the dreadful apparatus by the help of a set of muscles that join them to the jaw; and the animal he seizes, dies pierced with a hundred wounds in a moment.

Nor is this fish less terrible to behold as to the rest of his form; his fins are larger in proportion; he is furnished with great goggle eyes, which he turns with ease on every side, so as to see his prey behind him as well as before; and his whole aspect is marked with a character of malignity. His skin also is hard, rough, and prickly; being that substance which covers instrument cases, called shagreen.

No fish can swim so fast as the shark—he outstrips the swiftest ships. Such amazing powers, with such great appetites for destruction, would quickly unpeople even the ocean, but providentially the shark's upper jaw projects so far above the lower, that he is obliged to turn on one side (not on his back, as is generally supposed) to seize his prey.

Still, however, the depredations he commits are frequent and formidable. He is the dread of sailors in all hot climates; where, like a greedy robber, he attends the ships in expectation of what may drop overboard. A man, who unfortunately falls into the sea at such a time, is sure to perish. A sailor who was bathing in the Mediterranean, near Antibes, in the year 1744, perceived a monstrous fish making towards him, while he was about fifty yards from the ship, and surveying him on every side, as fish are

often seen to look round a bait. The poor man struck with terror at its approach, cried out to his companions on board. They accordingly threw him a rope with the utmost expedition, and were drawing him up by the ship's side, when the shark darted after him from the deep, and snapped off his leg.

A Guinea captain was by stress of weather driven into the harbour of Belfast with a lading of very sickly slaves, who took every opportunity to throw themselves overboard when brought upon deck, as is usual for the benefit of the fresh air, from a notion the unhappy creatures had, that after death they should be restored again to their families, friends, and country. The captain perceiving, among others, a woman slave attempting to drown herself, pitched upon her as a proper example to the rest: as he supposed they did not know the terrors attending death, he ordered the woman to be tied with a rope under the arm-pits, and to let her down into the water. When the poor creature was thus plunged in, and about half way down, she was heard to give a terrible shriek, which at first was ascribed to her fears of drowning: but soon after the water appearing red all around her, she was drawn up, and it was found that a shark, which had followed the ship, had bit her off from the middle.

The usual method of our sailors to take the shark, is by baiting a great piece of beef or pork, which is thrown into the sea by a strong cord, strengthened near the hook with an iron chain. When the sailors have sufficiently diverted themselves by seeing him survey the bait, swim round it, and seeming for a while to neglect it, they make a pretence, by drawing the rope, as if intending to take the bait away; it is then that the glutton's hunger excites him; he darts at the bait, and swallows it, hook and all. Some-



times, however, he does not so entirely gorge the whole, but that he once more gets free; yet even then, though wounded and bleeding with the hook, he will again pursue the bait until he is taken. When he finds the hook lodged in his maw, his utmost efforts are then exerted, but in vain, to get free; he tries with his teeth to cut the chain; he pulls with all his force to break the line; he almost seems to turn his stomach inside out to disgorgè the hook; in this manner he continues his formidable though fruitless efforts till quite spent; he then suffers his head to be drawn above water, and the sailors, confining his tail by a noose, in this manner draw him on ship-board and dispatch him. This is done by beating him on the head till he dies; yet even that is not done without difficulty and danger; the enormous creature, terrible even in the agonies of death, still struggles with its destroyers; nor is there an animal in the world that is harder to be killed. Even when cut in pieces, the muscles still preserve their motion, and vibrate for some minutes after being separated from the body.

Another method of taking him is by striking a barbed instrument, called the fizgig, into his body as he brushes along by the side of the ship. As soon as he is taken up, to prevent his flouncing, they cut off the tail with an axe with the utmost expedition.

Some of the negroes along the African coast take a bolder and more dangerous method to combat this terrible enemy. Armed with nothing more than a knife, the negro plunges into the water, where he sees the shark watching for his prey, and boldly swims forward to meet him; though the great animal does not come to provoke the attack, he does not avoid it, and suffers the man to approach him; but just as he turns upon his side to seize the aggres-

sor, the negro watches the opportunity, plunges his knife into the fish's belly, and pursues his blows with such success, that he lays the ravenous tyrant dead at the bottom; he soon, however, returns, fixes the fish's head in a noose, and drags him to shore, where he makes a noble feast for the adjacent villages.

Nor is man alone the only enemy this fish has to fear; the remora, or sucking fish, is probably a still greater, and follows the shark every where. This fish has got a power of adhering to whatever it sticks against, in the same manner as a cupping glass sticks to the human body. It is by such an apparatus that this animal sticks to the shark, drains away its moisture, and produces a gradual decay.

There are several other species of the shark.

The **BLUE SHARK** is distinguished by a fine smooth skin on its back, of a bluish colour. The observation of *Ælian*, that the young of this animal, when pursued, will take refuge in the belly of its mother, by swimming down her mouth, is confirmed by one of the best of modern ichthyologists (*Rondelittus*). Mr. Pennant, however, does not apprehend this circumstance to be peculiar to the blue shark, but rather common to the whole genus.

The **BASKING SHARK** has nothing of the rapacious nature of these animals, but feeds entirely on sea plants. They sometimes visit our coasts in the summer season, when they will lie basking in the sun on the surface of the water, and are so tame, that they will suffer themselves to be stroked. They are in length from three to twelve yards, and sometimes even longer.

The **HAMMER-HEADED SHARK**, or *balance fish*, is of a very singular form. The head is placed transversely to the body, like the head of a hammer or mallet. It is terminated at each end by an eye,

which is so placed that it more conveniently looks downwards than either upwards or sideways. In the farther part of the forehead, near the eyes, on each side, there is a large oblong foramen or orifice, serving either for hearing or smelling, or perhaps for both. The mouth is very large, placed under the head, and armed with four rows of teeth extremely sharp. The tail consists of two fins, one larger than the other. The back is ash-coloured, and the belly white. This fish is chiefly caught in the Mediterranean.

The ANGEL SHARK, or *monk fish*, is the animal which connects the shark genus with that of the ray, and partakes in some degree of the nature of both. It grows to a very large size, sometimes a hundred weight. The head is large, the teeth broad at the base, slender and sharp at the point. Like those of other sharks, they are capable of being raised or depressed at the pleasure of the animal. The eyes are oblong, and placed lengthways in the head. They are sunk very deep, and almost covered with the skin; and have more the expression of malevolence than of fire and spirit. The skin is very rough; the back is of a palish ash-colour, with a line of hard lumps, with pointed prickles along it. The pectoral fins are extremely large, and resemble wings, whence probably it derives the name of angel.

This species of shark feeds on flounders and flat fish. It is very dangerous to be approached; and is not unfrequent on all our coasts.

In this genus are included the several species of DOG FISH, which are common in most parts of the world, and retain much of the form and all the habits of the shark. Nay, their appetite for human flesh is said to be so great, that they will even venture upon the shore to satisfy this dreadful propensity.

Authors have classed under this genus a singular fish, which is well known in the Western Ocean under the name of **SAW FISH**. It is remarkable for a curious instrument with which it is furnished at the snout, resembling a saw, and which is sometimes of the length of five feet. From this circumstance it is evident that it must grow to a very large size.

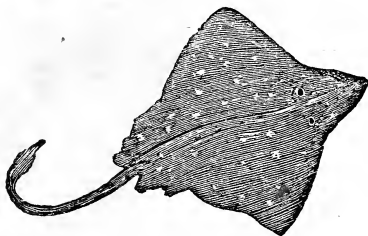


**THE RAY**

**THE** whole of this genus resemble each other very

strongly in their figure ; nor is it easy, without experience, to distinguish one from the other. The stranger to this dangerous tribe may imagine he is only handling a skate, when he is instantly struck numb by the torpedo.

It is by the spines that these animals are distinguished from each other.



THE SKATE.

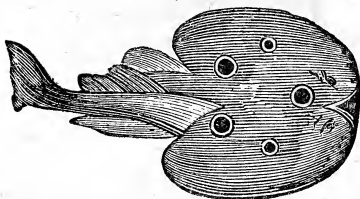
The SKATE has the middle of the back rough, and a single row of spines on the tail.

The SHARP-NOSED RAY has ten spines that are situated towards the middle of the back.

The ROUGH RAY has its spines spread indiscriminately over the whole back.

The THORNBACK has its spines disposed in three rows upon the back.

The STING-RAY, or *fire-flare*, has but one spine, but indeed a terrible one. This dangerous weapon is placed on the tail, about four inches from the body, and is not less than five inches long. It is of a flinty hardness, the side thin, sharp pointed, and closely and sharply bearded the whole way.



### THE TORPEDO.

The TORPEDO has no spines that can wound ; but, in the place of them, it is possessed of one of the most potent and extraordinary faculties in nature.

Of all the larger fish of the sea, these are the most numerous ; and they owe their numbers to their size. Except the white shark and cachalot alone, there is no other fish that has a swallow large enough to take them in ; and their spines makes them a still more dangerous morsel. Yet the size of some of them is such, that even the shark is unable to devour them. Labat speaks of a prodigious ray that was speared by the negroes at Guadaloupe, which was thirteen feet eight inches broad, and about ten feet from the snout to the insertion of the tail. The tail itself was fifteen feet long, twenty inches broad at its insertion, and tapering to a point. The body was two feet in depth ; the skin as thick as leather, and marked with spots, which spots, in all of this kind, are only glands, that supply a mucus to lubricate and soften the skin.

The rough ray inflicts but slight wounds with the

prickles with which its whole body is furnished. To the ignorant it seems harmless, and a man at first sight would venture to take it in his hand without any apprehension; but he soon finds that there is not a single part of its body that is not armed with spines: and that there is no way of seizing the animal but by the little fin at the end of the tail.

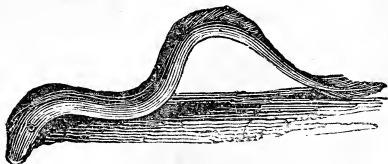
But this animal is harmless when compared to the sting-ray, or fire-flare, which seems to be the dread of even the boldest and most experienced fishermen. The spine with which it wounds its adversaries, is not venomous, as has been vulgarly supposed, but is, in fact, a weapon of offence belonging to this animal, and capable, from its barbs, of inflicting a very terrible wound, attended with dangerous symptoms.

The torpedo is equally formidable and well known with the former; but the manner of its operating is to this hour a mystery to mankind. The body of this fish is almost circular, and thicker than others of the ray kind; the skin is soft, and of a yellowish colour, marked with large annular spots; the eyes very small; the tail tapering to a point; and the weight of the fish from a quarter to fifteen pounds.

To all outward appearance it is furnished with no extraordinary powers; yet such is that unaccountable power it possesses, that the instant it is touched it numbs not only the hand and arm, but sometimes, also, the whole body. The shock received, by all accounts, much resembles the stroke of an electrical machine—sudden tingling, and painful. Kempfer says, “The nerves are so affected, that the person struck imagines all the bones of his body, and particularly those of the limb that received the blow, are driven out of joint. It is accompanied with a universal tremor, a sickness of the stomach, a general convulsion, and a total suspension of the faculties of the mind.”

Though we are ignorant of the nature of the torpedo, yet we have some facts which relate to the manner of its acting. Reaumur, who made several trials upon this animal, has, at least, convinced the world that it is not necessarily, but by an effort, that the torpedo numbs the hand of him who touches it. He tried several times, and could very easily tell when the fish intended the stroke, and when it was about to continue harmless. Always before the fish intended the stroke, it flattened the back, raised the head and the tail; and then, by a violent contraction in the opposite direction, struck with its back against the pressing finger; and the body, which before was flat, became humped and round.

The most probable solution of this phenomenon is, that it depends upon electricity. When the fish is dead, the whole is destroyed, and it may be handled or eaten with perfect security. It is now known that there are more fish than this of the ray kind possessed of the numbing quality which has acquired them the name of the torpedo.



### THE LAMPREY.

THERE is a species of the lamprey served up as a great delicacy among the modern Romans very different from ours. Whether theirs be the murena of the ancients, we shall not pretend to say; but



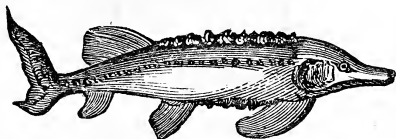
there is nothing more certain than that our lamprey is not.

The lamprey known among us is differently estimated, according to the season in which it is caught, or the place where it has been fed. Those that leave the sea to deposit their spawn in fresh waters are the best; those that are entirely bred in our rivers, and that have never been at sea, are considered as much inferior to the former. Those that are taken in the month of March, April, or May, just upon their leaving the sea, are reckoned very good; those that are caught after they have cast their spawn, are found to be flabby, and of little value.

The lamprey much resembles an eel in its general appearance, but it is of a lighter colour, and rather a clumsier make. It differs, however, in the mouth, which is round, and placed rather obliquely below the end of the nose. It more resembles the mouth of a leech than an eel; and the animal has a hole on the top of the head, through which it spouts water, as in the cetaceous kind. There are seven holes on each side for respiration; and the fins are formed rather by a lengthening out of the skin, than any set of bones or spines for that purpose. As the mouth is formed resembling that of a leech, so it has the property, like that animal, of sticking close to, and sucking any body it is applied to. We are told of one that weighed but three pounds, and yet it stuck so firmly to a stone of twelve pounds, that it remained suspended at its mouth, from which it was separated with no small difficulty. As to the intestines of the lamprey, it seems to have but one great bowel, running from the mouth to the vent, narrow at both ends, and wide in the middle.

Its usual time of leaving the sea, which it is annually seen to do in order to spawn, is about the be-

ginning of spring; and after a stay of a few months it returns again to the sea. Their preparation for spawning is very peculiar; their manner is, to make holes in the gravelly bottoms of rivers, and on this occasion their sucking power is very serviceable; for if they meet with a stone of a considerable size, they will remove it and throw it out. Their young are produced from eggs in the manner of flat fish; the female remains near the place where they are excluded, and continues with them till they come forth. She is often seen with her whole family playing about her; and after some time she conducts them in triumph to the ocean.



### THE STURGEON,

IN its general form, resembles a fresh water pike. The nose is long, the mouth situated beneath, being small, and without jaw-bones or teeth. It is long, pentagonal, and covered with five rows of large bony knobs, one row on the back, and two on each side, and a number of fins to give it greater expedition.

Of this fish there are three species, the COMMON STURGEON, the CAVIER STURGEON, and the HUSO, or *isinglass fish*. The largest sturgeon we have heard of caught in England, was taken in the Eske, where they are most frequently found, which weighed 460 pounds. An enormous size to those who have only seen our fresh-water fishes.

As the sturgeon is a harmless fish, and no way voracious, it is never caught in an ordinary manner of fishing, but always in nets. From the quality of floundering at the bottom it has received its name; which comes from the German verb *stoeren*, signifying to wallow in the mud. That it lives upon no large animals is obvious to all those who cut it open, when nothing is found in its stomach but a kind of slimy substance.

The usual time for the sturgeon to come up rivers to deposit its spawn, is about the beginning of summer, when the fishermen of all great rivers make a regular preparation for its reception. At Pillau particularly, the shores are formed into districts, and allotted to fishermen, some of which are rented for about three hundred pounds a-year. The nets in which the sturgeon is caught, are made of small cord, and placed across the mouth of the river; but in such a manner, that whether the tide ebbs or flows, the pouch of the net goes with the stream.

The HUSO, or *isinglass fish*, furnishes a still more valuable commodity. This fish is caught in great quantities in the Danube, from the months of October to January; it is seldom under fifty pounds weight, and often above four hundred; its flesh is soft, glutinous, and flabby; but it is sometimes salted, which makes it red like salmon. It is for the commodity it furnishes that it is chiefly taken. The manner of making it is this; they take the skin, the entrails, the fins, and the tail of this fish, and cut them into small pieces; these are left to macerate in a sufficient quantity of warm water, and they are all boiled shortly after with a slow fire, until they are dissolved and reduced to a jelly; this jelly is spread upon instruments made for the purpose, so that in drying it assumes the form of parchment, and, when

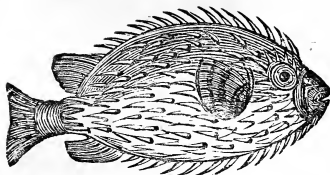
quite dry, it is then rolled into the form which we see it in the shops. This valuable commodity is principally furnished from Russia, where they prepare great quantities surprisingly cheap.

### THE LUMP SUCKER

Is in length but sixteen inches, and its weight about four pounds; the shape of the body is like that of a bream, deep, and it swims edgeways; the back is sharp and elevated, and the belly flat; the lips, mouth, and tongue are of a deep red; the whole skin is rough, with bony knobs, the largest row is along the ridge of the back; the belly is of a bright crimson colour: but the chief singularity in this fish is an oval aperture in the belly, surrounded with a fleshy substance, that seems bearded all round; by means of this part it adheres with vast force to anything it pleases. If thrown into a pail of water, it will stick so close to the bottom, that, on taking the fish by the tail, one may lift up pail and all, though it hold several gallons of water.

These fish are found in great numbers along the coasts of Greenland, in the beginning of summer, where they resort to spawn. Their roe is remarkably large, and the Greenlanders boil it to a pulp for eating. They are very fat, but both flabby and insipid.

The UNCTUOUS SUCKER, or *sea snail*, takes its name from the soft and unctuous texture of its body, resembling the snail upon land. It is almost transparent, and soon dissolves and melts away. It is about five inches long. The colour, when taken, is of a pale brown, and the shape of the body is round. It is taken in England at the mouths of rivers, four or five miles distant from the sea.



### THE SEA PORCUPINE

Is almost round, has a mouth like a frog, and is from seven inches to two feet long. Like the porcupine, from whence it takes its name, it is covered over with long thorns or prickles, which point on every side; and when the animal is enraged, it can blow up its body as round as a bladder.

Of this extraordinary creature there are many species; some threatening only with spines, and others defended with a bony helmet that covers the head.

### THE HIPPOCAMPUS

Is, from the form of its head, called by some the *sea horse*. It is about as thick as a man's thumb, never exceeds nine inches in length, and the body is said, while alive, to have hair on the fore part, which falls off when it is dead. The snout is a sort of tube, with a hole at the bottom, to which there is a cover, which the animal can open and shut at pleasure.



### THE PIPE FISH.

THE body of this fish, in the thickest part, is not thicker than a swan-quill, while it is above fifteen inches long. Its general colour is olive brown, marked with numbers of bluish lines pointing from the back to the belly. It is viviparous; for on crushing one that had just been taken, hundreds of very minute young ones were observed to crawl about.

### THE GALLEY FISH.

To the eye of an unmindful spectator, this fish seems a transparent bubble, swimming on the surface of the sea, or like a bladder variously and beautifully painted with vivid colours, where red and violet predominate, as variously opposed to the beams of the sun. It is, however, an actual fish; the body of which is composed of cartilages, and a very thin skin filled with air, which thus keeps the animal floating on the surface, as the waves and the winds happen to drive. It has eight broad feet with which it swims, or which it expands to catch the air as with a sail.

## CHAPTER II.

OF BONY FISHES IN GENERAL. Apodal Fishes—The *Eel*—The *Wolf-fish*—The *Launce*—The *Sword Fish*—Jugular Fishes—The *Dragonet*—The *Weever*—The *Cod* genus—The *Blenny*—The crested and viviparous Blenny. Thoracic Fishes—The *Goby*—The *Remora*—The *Bull-head*—The Miller's Thumb—The *Pogge*—The *Doree*—The *Opah*—The *Flounder* Genus—The *Gilt-head*—The *Dorado*—The *Wrasse*—The *Ballan*, &c.—The *Perch*—The *Basse*—The *Ruff*—The *Stickleback*—The *Mackerel*—The *Tunny*—The *Scad*—The *Surmulet*—The *Gurnard*. Abdominal Fishes—The *Louch*—The *Salmon* Genus—The *Pike*—The *Gar-pike*—The *Saury-pike*—The *Argentine*—The *Mullet*—The *Flying Fish*—The *Herring*—The *Pilchard*—The *Sprat*—The *Anchovy*—The *Shad*—The *Carp*—The *Barbel*—The *Tench*—The *Bream*—The *Rud*—The *Crucian*—The *Roach*—The *Dace*, &c.—The *Butterfly Fish*—The *Gold Fish*—The *Telescope Fish*

THE third general division of fishes is into that of the spinous, or bony kind. These are obviously distinguished from the rest by having a complete bony covering to their gills; by their being furnished with no other method of breathing but gills only; by their bones, which are sharp and thorny; and their tails, which are placed in a situation perpendicular to the body.

The bones of this order of fishes, when examined but slightly, appear to be entirely solid; yet, when viewed more closely, every bone will be found hollow, and filled with a substance less rancid and oily than marrow. Those bones are very numerous and pointed; and as in quadrupeds, are the props or stays to which the muscles are fixed, which move the different parts of the body.

The number of bones in all spinous fishes of the same kind is always the same. It is a vulgar way

of speaking to say that fishes are, at some seasons, more bony than at others ; but this scarcely requires contradiction. It is true, indeed, that fishes are at some seasons fatter than at others ; so that the quantity of flesh being diminished, and that of the bones remaining the same, they appear to increase in numbers, as they actually bear a greater proportion.

As the spinous fish partake less of the quadruped in their formation than any others, so they can bear to live out of their own element a shorter time. Some, indeed, are more vivacious in air than others ; the eel will live several hours out of water ; and the carp has been known to be fattened in a damp cellar. The method is by placing it in a net well wrapped up with wet moss, the mouth only out, and then hung up in a vault. The fish is fed with milk and white bread, and the net occasionally plunged into water.

The power of increasing in these animals exceeds our idea, as it would, in a very short time, outstrip all calculation ; and a single herring, if suffered to multiply unmolested and undiminished for twenty years, would show a progeny greater in bulk than ten such globes as that we live upon. Although the usual way with spinous fishes is to produce byspawn, yet there are some, such as the blenny and the eel, that are known to bring forth their young alive.

With respect to the growth of fishes, it is observed that among carps particularly, the first year they grow to about the size of a leaf of the willow tree ; at two years they are about four inches long ; and seven after the fifth year. From that to eight years old they are found to be larger in proportion to the goodness of the pond, from eight to twelve inches. With regard to sea fish, the fishermen assure us, that a fish



must be six years old before it is fit to be served up to table. Thus it appears that fish are a considerable time in coming to their growth, and that they are a long time the prey of others before it comes to their turn to be destroyers.

It is impossible to account for the different operations of the same element upon animals, that, to appearance have the same conformation. To some fishes, bred in the sea, fresh water is immediate destruction: on the other hand, some fishes, that live in our lakes and ponds, cannot bear the salt water. There are some tribes, however, that spend a part of their season in one, and a part in the other. Thus the salmon, the shad, the smelt, and the flounder, annually quit the ocean, and come up our rivers to deposit their spawn. This seems the most important business of their lives; and there is no danger which they will not encounter, even to the surmounting precipices, to find a proper place for the deposition of their future offspring. The salmon, in particular, is seen to ascend rivers five hundred miles from the sea, and to brave not only the dangers of various enemies, but also to spring up cataracts as high as a house. It sometimes happens, however, they want strength to take the leap, and then, in our fisheries, they are taken in their descent.

But the length of the voyage performed by these fishes is sport, if compared to what is annually undertaken by some tribes that constantly reside in the ocean. Of this kind are the cod, the whiting, the haddock, the mackerel, the tunny, the herring, and the pilchard.

As fish are enemies to one another, so each species is infested with worms of different kinds, peculiar to itself. The great fish abound with them; and the little ones are not entirely free. These trouble-

some vermin lodge themselves either in the jaws or the intestines internally, or near the fins without. When fish are healthy and fat, they are not much annoyed by them; but when they are lean and sickly, as in winter, they suffer greatly.

The history of any one of this order very much resembles that of all the rest. They breathe air and water through the gills; they live by rapine, each devouring such animals as its mouth is capable of admitting; and they propagate, not by bringing forth their young alive, as in the cetacious tribes, nor by distinct eggs, as in the generality of cartilaginous tribes, but by spawn, or peas, as they are often called, which they produce by hundreds of thousands.

As this order of fishes is extremely numerous, various modes of classing them have been invented by different naturalists. That of Linnæus is however, the most simple, who ranks them in four divisions, according to the position of the fins.



## APODAL FISHES.

THIS is the first division of that celebrated naturalist, and includes the most imperfect of the order:—viz. those which want the ventral, or belly fins, and consists of the following genera:

### THE EEL

Is the first genus of this division, and includes several species.

The COMMON EEL is a very singular fish, in several things that relate to its natural history, and in

some respects borders on the nature of the reptile tribe.

It is known to quit its element, and, during night, to wander along the meadows, not only for change of habitation, but also for the sake of prey, feeding on the snails it finds in its passage.

During winter, it beds itself deep in the mud, and continues in a state of rest, like the serpent kind. It is very impatient of cold, and will eagerly take shelter in a wisp of straw flung into a pond in severe weather, which has sometimes been practised as a method of taking them. We are assured by Alber-tus, that he has known eels to shelter in a hay-rick, yet all perish through excess of cold.

The ancients entertained a most strange opinion about the generation of these fish, believing them to be either created from the mud, or that the scrapings of their bodies which they left on the stones, were animated, and became young eels. Some moderns gave into these opinions, and into others that were equally absurd. They could not account for the appearance of these fish in ponds that were never stocked with them, and were even so remote as to make their being met in such places a phenomenon that they could not solve. But there is much reason to believe, that many waters are supplied by the aquatic fowl of prey, in the same manner as vegetation is spread by many of the land birds, either by being dropped as they carry them to feed their young, or by passing quick through their bodies, as is the case with herons; and such may be the occasion of the appearance of these fish in places where they were never known before. As to their immediate generation, it has been sufficiently proved to be effected in the ordinary course of nature, and that they are viviparous.

Eels are extremely voracious, and very destructive to the fry of fish.

No fish lives so long out of water as the eel; and its parts will move a considerable time even after being flayed and cut to pieces.

This fish is furnished with a pair of pectoral fins, rounded at the ends. Another narrow fin on the back, uniting with that of the tail; and the anal fin joins it in the same manner beneath.

Behind the pectoral fins is the orifice to the gills, which are concealed in the skin.

The eyes are not placed remote from the end of the nose; the irides are tinged with red; the under jaw is longer than the upper; the teeth are small, sharp, and numerous; beneath each eye is a minute orifice, and at the end of the nose two others, small and tubular.

Eels vary much in their colours, from a sooty hue to a light olive green; and those which are called silver eels have their bellies white, and a remarkable clearness throughout.

The eel is the most universal of fish, yet is very seldom found in the Danube, though it is common in the rivers of Upper Austria.

The CONGER EEL has been taken ten feet and a half long, and eighteen inches in circumference in the thickest part. They differ from the common eel, not only in their size, but in being of a darker colour, and in the form of the lower jaw, which is shorter than the upper. They prey upon other fish, particularly upon crabs when they have cast their shell. The fishermen kill the large congers as soon as possible, by striking them on the navel, lest they should endanger their legs by clinging round them.

The ELECTRICAL EEL is a fresh-water fish, and

found in the river Surinam. It is said sometimes to grow to the length of twenty feet, but its usual size is from three to four, and about ten or fourteen inches in circumference in the thickest part of the body. The head is large and flat, and perforated with small holes. The jaws are without teeth; the back and sides are covered with many light-coloured spots. The pectoral fins are round and small, and only serve to raise the fish's head out of the water to breathe, which he is obliged to do every four or five minutes. The skin of the body is formed into a number of wrinkles, or annular bands, which give it a worm-like appearance.

The electrical shock is conveyed either through the hand, or any metallic conductor which touches the fish; and a stroke of one of the largest kind proves instant death even to man himself. This extraordinary power is given to this fish both for defence and subsistence. For whenever small fishes or worms are thrown into the water, they are first struck dead by the electric power of this animal, and then swallowed by him.

## THE WOLF FISH

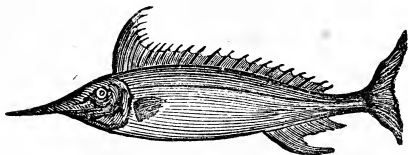
HAS the body roundish and slender; the head large and blunt; the fore teeth above and below, conical; the grinding teeth, and those in the palate, round; the fin covering the gills has six rays.

This animal seems to be confined to the northern seas. It grows to a very large size, measuring from four to seven feet. It is a very ravenous and fierce fish, and when taken will fasten on any thing in its reach. The fishermen, dreading its bite, knock out its fore-teeth, which are so strong, that they will leave an impression on an anchor.

It feeds almost entirely on shell-fish, which it grinds to pieces with astonishing quickness. On account, probably, of its disagreeable appearance, its flesh is not much esteemed, though the fishermen prefer it to halibut.

### THE LAUNCE, OR SAND EEL,

Is known by a body slender and roundish; the head terminated by a beak; the teeth of a hair-like fineness; the fins covering the gills with seven rays. It grows to the length of nine or ten inches, and abounds on the sandy shores of Great Britain, during some of the summer months. It conceals itself among the sand, whence, during flood-tide, they are rooted up and devoured by the porpoises, and, on the recess of the tide, they are drawn out with a hook by the fishermen. They are commonly used as a bait for other fishes, but of themselves are very delicate food.



### THE SWORD FISH.

THIS curious fish sometimes weighs a hundred pounds. The body is long and rounded, largest near the head, and tapering towards the tail. Its skin is rough, the back black, and the belly of a silvery white. It has one fin on the back, running almost

its whole length; and has one pair of fins almost at the gills. But the most remarkable part of this fish is the snout, which, in the upper jaw, runs out in the figure of a sword, sometimes to the length of three feet; but the under jaw is much shorter.

The sword fish is common in the Mediterranean, and is not an absolute stranger to our own coasts. Its flesh is highly esteemed.



## JUGULAR FISHES.

THE principal characteristic of this order consists in the ventral fins being placed before the pectoral, or nearer to the gills.

### THE DRAGONET

Is the first genus in this division. Its general characters are the upper lip doubled, the eyes very near each other, two breathing apertures on the hind part of the head, and the first ray of the dorsal fin extremely long. There are two species described by Mr. Pennant.

The GEMMEOUS DRAGONET is about a foot long, with a large head, and a round, slender, and smooth body. Its colours are very beautiful; when it is just taken it is yellow, blue, and white. The throat is black; and the membranes of the fins are thin and delicate.

The SORDED DRAGONET resembles the preceding, but its first dorsal fin is not so long, nor are its colours so brilliant.

## THE WEEVER

Is sometimes known to grow to the length of twelve inches, though it is commonly found much smaller. The lower jaw slopes down very abruptly, and its back is armed with strong spines. It buries itself in the sand, leaving only its nose out, and when trod upon strikes forcibly with its spines, which are said to be venomous, though probably the pain and inflammation attending the wounds which it inflicts depend on the habit of the person or the part which is struck. Its flesh is tolerable eating.



## THE COD.

THIS is an extensive genus, including a number of well-known and useful fishes. The general characters are a smooth head, the fin that covers the gills consisting of seven rays, all the fins covered with a common skin, the ventral fins slender and ending in a point. It has teeth in the jaws, and a series of small teeth closely set together in the palate. Most of the species have also the chin bearded.

The COMMON COD is short in proportion to its bulk, the belly is large and prominent, its eyes are large, and at the end of the lower jaw is a small beard.

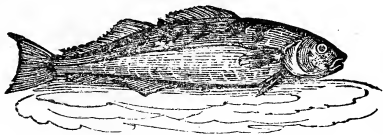


It is ash-coloured, spotted with yellow, and the belly white ; on the back are three soft fins.

There are also **THREE** and **FIVE-BEARDED CODS**, differing from the common cod, not only in this character, but in having two black fins, the latter very long.

The **COD** seems to be the first among the wandering tribes of fishes, and is only found in our northern parts of the world. On the banks of Newfoundland, the coasts of Cape Breton, Nova Scotia, and New England, they abound in an extraordinary degree, drawn thither by the number of small fish and worms which the bottom supplies.

The cod-banks of Newfoundland are a sort of submarine mountains, extending for above five hundred miles long, and surrounded with a deeper sea. The English have stages erected all along the shore for salting and drying the cod ; and the fishermen who take them with the hook and line, which is their method, draw them in as fast as they can throw out. This immense capture, however, makes but a very small diminution when compared to their numbers ; and when their provision there is exhausted, or the season for propagation returns, they go off to the polar seas, where they deposit their spawn.



THE HADDOCK

Is a well known fish, which resembles the cod, but is smaller ; it is also distinguished by a black

mark on each side beyond the gills, which superstition ascribes to the impression St. Peter left with his finger and thumb, when he took the tribute money out of the fish's mouth, which tradition would have us believe to have been of this species.

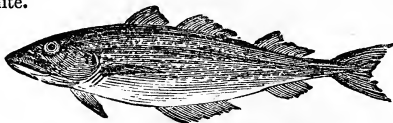
The **WHITING POUT** in size seldom exceeds a foot. The back is much arched, the scales larger than that of the cod, and on each side of the jaw are seven or eight punctures.

The **RIB** grows also to the length of a foot, the sides being finely tinged with gold.

The **POOR** is the only species of cod found in the Mediterranean; and it is not more than six inches long.

The **COAL FISH** takes its name from the black colour it sometimes assumes. It grows to the length of two feet and a half, and is more elegant in shape than the cod. The flesh is little esteemed when fresh, but is commonly salted and dried for sale. The fry of this fish is called *parr*, and is considered good food.

The **POLLACK** does not grow to a very large size, but is a very good eating fish. The first back fin has eleven rays, the middle nineteen, the last sixteen. The tail is a little forked; the colour of the back is dusky, in some inclining to green; the belly is white.



### THE WHITING

Is of an elegant form, and more delicate food than

any of the genus. The back is a pale brown, and the belly of silvery white. The first back fin has fifteen rays, the second eighteen, the third twenty. It seldom exceeds twelve inches in length.

The seven last species have three back fins; the *burbot*, the *ling*, and the *hake*, have only two; and the *torsk* has only one.

## THE BLENNY.

OF this genus there are several species; all distinguished by having six bones in the membranes of the gills, the fore-part of the head sloping, the body smooth and slippery, and the ventral fins generally consisting of two united rays.

The VIVIPAROUS BLENNY is a singular fish, and generally brings forth two or three hundred at a time. They are very common in the river Esk, at Whitby, in Yorkshire, and some other parts of England. The flesh is very coarse, and eaten only by the poor.



## THORACIC FISHES.

THIS division comprises those fishes which have the belly fins immediately under the pectoral.

## THE GOBY, OR ROCK FISH,

Is not above six inches long. The head is large, the cheeks inflated: the body soft, slippery, and slender. It has two back fins, and the ventral fins coalesce, and form a sort of funnel, by which these fix themselves immoveably to the rocks.

The REMORA, or *Sucking Fish*, which we have already partly described, appears to belong to this genus. It resembles the herring in its shape, but on the head has an apparatus for fixing itself to a ship, or to the body of another fish. It is found in the Indian ocean.

## THE BULL-HEAD

Is a well known genus, including several species, all of which have a large head armed with spines.

The RIVER BULLHEAD, or *Miller's Thumb*, is very common in all our clear lakes. It rarely exceeds three inches in length, and is easily distinguished by a broad flat head, well adapted for insinuating itself under stones. It is of a dusky colour, mixed with dirty yellow, and has two back fins.

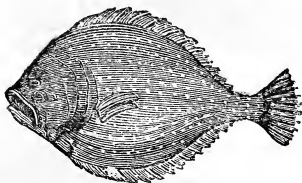
The FATHER LASHER, or *Sea Scorpion*, is about eight or nine inches long. The nose, the top of the head, and the back fins are armed with strong sharp spines. It is very common in the Newfoundland seas, and constitutes a principal resource of food in Greenland.

The POGGE, or *Armed Bull-head*, is found on most of the European coasts, and is distinguished by its large bony head, which is armed at the nose with four short upright spines, and by a number of white beards at the throat. It is about five inches long.

## THE FLOUNDER

Is a very extensive genus, including those innumerable species which are known by the common term—flat fish, and which are distinguished from all others by one invariable characteristic, viz. that

of having both the eyes on the same side of the head.



## THE TURBOT

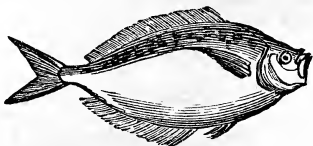
Is the most celebrated of all this genus, and has been known to grow to the weight of thirty pounds. The turbot fishery is of considerable importance to the Dutch, and the mode of conducting it is the same with that employed for taking the ray, which has already been minutely described.

The HALIBUT is the largest fish of this genus. In the British seas some have been caught weighing from two to three hundred pounds. It is the most voracious of fishes, and has been known to swallow the lead which seamen make use of for the purpose of sounding the depth. Its back is a dusky colour, its belly pure white. Its flesh is coarse for eating, except the part which adheres to the side fins, which is very fat and delicious, though at the same time rather surfeiting.

## THE PLAICE

Is easily known by the upper parts of the body, which is dusky, being marked with large orange-co-

loured spots. It sometimes weighs fifteen pounds, but in general is considerably smaller.



THE PLAICE.

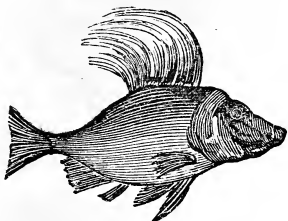


THE FLOUNDER

MAY be distinguished from every other fish of this genus by a row of sharp small spines, which surround its upper sides, and are just placed where the fins join to the body. It frequents our rivers, where it may be termed a fish of passage, generally repairing thither at certain seasons to deposit its spawn. The back is of a pale brown, sometimes marked with a few obscure spots.

The DAB is often found along with the flounder, but is less common. It is smaller than either the plaice or the flounder, but is more esteemed as food. The back is generally of a uniform brown colour, sometimes clouded with a darker.

The SOLE is a well-known fish, and is one of the most delicate of British fishes. It sometimes weighs six or seven pounds. On the northern coasts it is much smaller.



### THE DOREE.

THIS fish superstition has exalted into a rivalry with the haddock, for the honour of having been the fish out of whose mouth St. Peter took the tribute money, leaving on its sides the impression of his finger and thumb. According to some old writers of the church, however, St. Cristopher, in wading through an arm of the sea, caught a fish of this kind; and, as an eternal memorial of the fact stamped the impression on its sides.

The figure of the doree is very ugly. The body is oval, and greatly compressed on the sides; its snout is long, and its mouth wide. The first back fin consists of twenty spine rays, with long filaments; the second twenty-four soft rays; the tail is round at the end; the colour of the body is olive, varied with light blue and white. While living it has the appearance of gilding, whence it derives its name.

The celebrated glutton and comedian Quin, was the first who introduced this fish to our tables; ever since which time it has maintained the reputation of being a delicious viand, notwithstanding its forbidding form and aspect.

The *OPAH* is another of this genus, which sometimes arrives at an immense size. One which was caught at Torbay weighed one hundred and forty pounds. The general colour is a transparent scarlet varnish, spangled with silver spots of various sizes. The mouth is exceedingly small compared with its size.

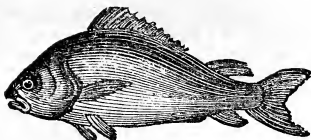
### THE GILT-HEAD

**TAKES** its name from its predominant colour, the forehead and sides resembling gold, though the latter are tinged with brown. It has but one back fin, which reaches the whole length of the body. It in some degree resembles the bream in its form. It is found in deep waters on bold rocky shores; it subsists chiefly on shell-fish, and some of the species grow to the weight of ten pounds.

### THE WRASSE, OR OLD WIFE,

Is the most common of the wrasse genus. It is of a clumsy shape, not unlike a carp, and covered with large scales; it has one large back fin, which consists of sixteen sharp spiny rays, and nine soft ones. The tail is rounded at the extremity, and is formed of fourteen soft branching rays. They are of various colours, some being of a dirty red, and others beautifully striped.





## THE PERCH

Is a gregarious fish, commonly taking up its abode in deep holes and gently flowing streams. It is extremely voracious; and bites with such eagerness, that, if the angler chances to find a shoal, he seldom fails to catch numbers. It is too well known to need any description.

The perch is very tenacious of life; we have known them carried fifty or sixty miles in dry straw, and yet survive the journey.

These fish seldom grow to a large size; but some have been taken that weighed nine pounds, which, however is very uncommon.

In a lake called Llyn Raithlyn, in Merionethshire, is a singular variety of perch; the back is quite hunched, and the lower part of the back-bone greatly distorted; but in other respects it resembles the common kind. It appears they are not peculiar to this water; for Linnæus takes notice of a similar variety found at Fahlun, in his own country. It is also met with in the Thames, in the vicinity of Marlow.

The BASSE is a larger and coarser kind of perch, which sometimes grows to the weight of fifteen pounds. It is, however, of rather a longer make, more resembling that of a salmon. The back is dusky, tinged with blue, and the belly white.

## THE MACKEREL,

As well as the haddock and the whiting, are thought by some to be driven upon our coasts rather by their fears than their appetites; and it is to the pursuit of the larger fishes we owe their welcome visits. It is much more probable that they come for that food which is found in more plenty near the sea-shore than farther out at sea. The limits of a shoal are precisely known; for if the fishermen put down their lines at a distance of three miles from the shore, they catch nothing but dog-fish; a proof that the haddock is not there.

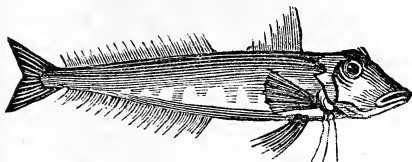
The colours of the mackerel are a fine green, varied with blue and black, which death, indeed impairs, but cannot totally destroy.

The TUNNY retains not only the character but the habits of the mackerel. They resort in vast shoals to the Mediterranean at certain seasons, and, from the earliest periods of history, have constituted a considerable branch of commerce there. The tunny, however, differs greatly from the mackerel in size; one of which Mr. Pennant saw at Inverary that weighed 460 pounds. It was seven feet ten inches in length, and the circumference in the largest part was five feet seven, and near the tail only one foot six. The pieces, when fresh cut, appear like raw beef, but when boiled turn pale, and have something the flavour of salmon.

## THE SURMULET

HAS the body slender; the head almost four-cornered; the fin covering the gills with three spines; some of these have beards. It was a fish highly

prized by the Romans, and is still considered a great delicacy.



### THE GURNARD.

THIS genus is known by a slender body, the head nearly four-cornered, and covered with a bony coat; the fin covering the gills with seven spines; the pectoral and ventral fins, strengthened with additional muscles and bones, and large for the animal's size.

There are five species of the gurnard; having all nearly the same habits. They are taken in deep water, with no other bait than a red rag, and are very good food.



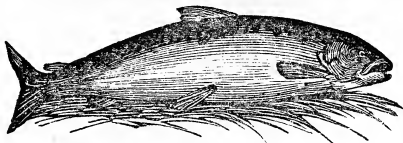
### ABDOMINAL FISHES.

THIS division is principally distinguished by having the ventral fins behind the pectoral, that is, nearer the tail, as in the salmon.

### THE LOACH

Is the first genus noticed in this division, and is found in several English rivulets, particularly near

Amesbury, in Wiltshire. It seldom exceeds four inches in length; and is distinguished by an oblong body, almost equally broad throughout; the head small, a little elongated; the eyes in the hinder part of the head; the fin covering the gills from four to six rays; the covers of the gills closed below.



## THE SALMON

Is too well known to require a description. It is chiefly, if not altogether, confined to the northern latitudes. About the latter end of the year the salmon begin to press up the rivers to deposit their spawn, which lies buried in the sand till spring, if not disturbed by the floods, or destroyed by other fishes. The young ones appear about March, and about May the river is full of the salmon fry, which are then four or five inches long, and gradually proceed to the sea. About the beginning or middle of June the earliest fry begin to return again from the sea, and are then from twelve to fourteen inches long.

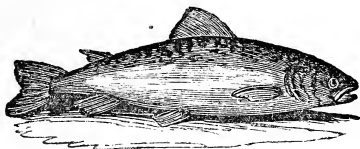
The growth of this fish is so extraordinary, that a young salmon being taken at Warrington, and which weighed seven pounds on the 7th of February, being marked with a scissars on the back fin, was again taken on the 17th of March following, and was then found to weigh seventeen pounds and a half.

The SALMON-TROUT, like the true salmon, mi-

grates from the sea up several of our rivers ; and, after it has spawned, returns to the salt water. The shape is thicker than the common trout. The head and back are dusky, with a gloss of blue and green, and the sides, as far as the lateral line, are marked with large irregular spots of black. The flesh, when boiled, is red, and resembles that of salmon in taste.

The **WHITE TROUT** appears much of the same nature, and migrates out of the sea into the river Eske, from July to September.

The **SAMLET** is the least of the trout kind, and by some has been imagined to be the fry of the salmon.



### THE TROUT.

THE colours of this fish, as well as the flavour of its flesh, vary greatly in different waters ; in every place the flesh is much esteemed. It is extremely voracious, and affords excellent sport to the angler. It changes its quarters when about to spawn, and makes towards the heads of rivers. Some varieties are remarkable for the thickness of their stomachs, which have a slight resemblance to the organs of digestion in birds, called gizzards.

In Lough Neagh, in Ireland, trouts are called *buddahgs*, which sometimes weigh thirty pounds.

In Llyndivi, a lake in South Wales, are trouts :

called *cock-y-dail*; they sometimes weigh near ten pounds, but are bad tasted.

Trouts are also taken in Ulswater, of a much superior size to those of Lough Neagh. These are supposed to be the same with the trout of the Lake of Geneva.



## THE PIKE

Is a well known fish. They are common in most of the lakes of Europe, but those taken in Lapland are the largest. The largest fish of this kind which we have ever heard of in England, weighed thirty-five pounds.

According to common report, pikes were first introduced into England in 1537. They were then so rare, that a single fish was sold for double the price of a house-lamb.

All writers who treat of this fish describe it as the most active and voracious among the inhabitants of fresh water. We have known one that was choked by attempting to swallow one of its own species that proved too large a morsel.

At the Marquis of Stafford's canal at Trentham, a pike seized the head of a swan, as she was feeding under water, and gorged so much of it as killed them both. It will devour the water-rat, and even contend with the otter.

When the pike lies dormant near the surface, as is often the case, they are haltered in a noose, and

taken while thus asleep, as they are often found in the ditches near the Thames, in the month of May.

The longevity of the pike is as remarkable as its voracity. A pike was taken at Halibrun, in Suabia, in 1497, with a brazen ring affixed to it, on which were these words in Greek characters: "I am the fish which was first of all put into this lake by the hands of the governor of the universe, Frederick the Second, the 5th of October, 1230." So that it must have lived two hundred and sixty-seven years, besides its age when it was put into that piece of water.

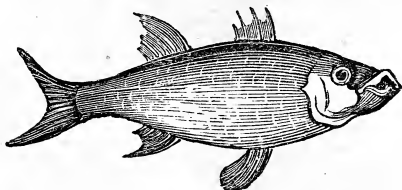
Pikes spawn in March or April, according to the coldness or warmth of the weather. When they are in high season, their colours are very fine, being green, spotted with bright yellow, and the gills are of a vivid and full red. When out of season, the green changes to grey, and the yellow spots assume a palish hue.

The GAR-PIKE, or *sea-needle*, arrives in shoals on the British coasts about the beginning of summer, preceding the mackerel, which it resembles in taste. It is distinguished from all of the kind by the backbone, which turns a fine light green when the fish is cooked. It sometimes grows to the length of three feet. The jaws are very long, slender, and pointed, and the edges of them are armed with numbers of short slender teeth. The tail is forked.

The SAURY-PIKE is about eleven inches long, and its jaws are protracted like those of the sea-needle. The body resembles that of an eel, but, like the mackerel, it has a number of small fins near the tail, which is forked.

## THE ARGENTINE

Is a small fish between two and three inches long. The body is compressed, and almost of an equal breadth to the anal fin. The back is of a dusky green, the sides and covers of the gills as if planted with silver. It is taken in the sea.



## THE MULLET

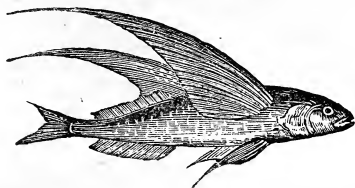
Is a fish of an elegant form; is generally found by the sea shores, where it roots like a hog in the sand or mud; and is so active, that it frequently escapes by leaping out of the fishermen's nets. The head is almost square, and is flat at the top. It has no teeth, only in the upper lip is a small roughness. The colour of the back is dusky, marked with blue and green; the sides silvery, marked with dusky lines reaching from the head to the tail. The belly is silvery, and the tail is much forked.

## THE FLYING FISH.

THE head of this fish is scaly; the belly is angular, and the pectoral fins, the instruments of flight, are very



large. When pursued by any other marine animal, it raises itself from the water by means of these long



fins, and can support itself in the air till they become dry, when it again drops into the water. It seems to lead a wretched life, being constantly pursued by fishes of prey; and when it has recourse to flight, it often meets its fate from the gull or the albatross, or perhaps drops down again into the mouth of its original pursuer. Between the tropics it is common, and there its enemies are numerous. It is there seen leaping out of the sea by hundreds, and sometimes it throws itself on board of ships, in order to escape its numerous assailants. It is about a foot long, of a whitish colour, and the flesh is said to be palatable.



### THE HERRING.

THIS is a fish too well known to require a description. The genus includes, however, some species

less generally diffused, such as the pilchard and the shad, the anchovy, &c.

The PILCHARD is thicker and rounder than the herring. The nose is shorter in proportion, and turns up. The back is more elevated, the belly less sharp. The back fin of the pilchard is placed exactly in the centre of gravity, so that when it is taken up by it, the fish exactly preserves its equilibrium, whereas that of the herring dips at the head. The scales of the pilchard adhere very closely, whereas those of the herring easily drop off. The pilchard is in general less than the herring, and is fatter and fuller of oil.

Of all migrating fish, the herring and the pilchard take the most adventurous voyages. Herrings are found in the greatest abundance in the highest northern latitudes. In those inaccessible seas, that are covered with ice for a great part of the year, the herring and pilchard find a quiet and sure retreat from all their numerous enemies; thither neither man, nor their still more destructive enemy, the fin-fish, or the cachalot, dares to pursue them.

The quantity of insectfood which those seas supply is very great; whence in that remote situation, defended by the icy rigour of the climate, they live at ease, and multiply beyond expression. From this most desirable retreat some suppose they would never depart, but that their numbers render it necessary for them to migrate; and as bees from a hive, they are compelled to seek for other retreats.

For this reason, the great colony is seen to set out from the icy sea about the middle of winter; composed of such numbers, that if all the men in the world were to be loaded with herrings, they would not carry a thousandth part away. But no sooner do they leave their retreats, than millions of enemies

appear to thin their numbers. The fin-fish and the cachalot swallow barrels at a yawn ; the porpoise, the grampus, and the shark, and the numerous tribe of dog-fish, find them an easy prey, and cease from making war upon each other ; but still more, the innumerable flocks of sea-fowl that chiefly inhabit near the pole, watch the outset of their dangerous migration, and spread extensive devastation.

The squadron which comes upon our coasts begins to appear off the Shetland Isles in April. These are the forerunners of the grand shoal which descends in June ; while its arrival is easily announced by the number of its greedy attendants. When the main body is arrived, its breadth and depth is such, as to alter the appearance of the ocean. It is divided into distinct columns of five or six miles in length, and three or four broad, while the water before them curls up, as if forced out of its bed. The fishermen are prepared to give them a ready reception ; and, by nets made for the occasion, they take sometimes two thousand barrels at a single draught.

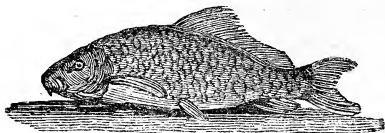
The SPRAT is now generally allowed not to be the fry of the herring, as, from its great resemblance, was formerly supposed. They usually arrive in the river Thames about the beginning of November, and quit it in March. They are rather a fat and oily food, but, when fried, furnish a cheap and not unpleasant meal.

The ANCHOVY is about six inches long, with a pointed snout and a wide mouth. It is caught in vast quantities in the Mediterranean, particularly at Gorgona ; and is brought over to this country pickled.

The SHAD is taken in many rivers, those of the Severn are the most esteemed, and are distinguished by the name of *Alosse*. The shad caught in the

Thames is a very insipid, coarse fish, and when it visits the Severn, is called the *twait*, it is held in great disrepute.

The shad, in form, rather resembles the herring, but is larger and thinner, or more compressed in proportion. The head slopes considerably from the back, and the under jaw is longer than the upper.



### THE CARP.

THIS genus includes several fishes well known to anglers, as the barbel, gudgeon, tench, bream, dace, roach, &c. The carp was introduced into this country in the year 1514, and is the most suitable for stocking ponds on account of its quick growth and prodigious increase.

These fish are very cunning. They will sometimes leap over the nets and escape; at others, will immerse themselves so deep in the mud, as to let the net pass over them. They are also very shy at taking a bait, yet at the spawning time they are so simple, as to allow any body to take them.

The carp is a prodigious breeder; its quantity of roe has been found so great, that when taken out and weighed against the fish itself, the former has been found to preponderate.

This fish is apt to mix its milt and the roe of other

fish, from which is produced a spurious breed. We have seen the offspring of the carp and tench, which bore the greatest resemblance to the first; have also heard of the same mixture between the carp and the bream.

The carp is of a thick shape; the scales very large, and when in best season of a fine gilded hue. The jaws are of equal length. On each side of the mouth is a single beard; above those on each side, another, but shorter; the dorsal fin extends far towards the tail.

The **TENCH** was anciently in as little reputation as the barbel, but its flesh is now in much estimation. It has by some been called the physician of the fish, and the slime is so healing, that the wounded apply it as a styptic.

The tench is thick and short in proportion to <sup>its</sup> length; the scales are very small, and covered with <sup>e-</sup> slime. They love still waters, and are rarely found <sup>its</sup> in rivers. They commonly weigh about four or five pounds, but we have heard of one that weighed <sup>th,</sup> ten pounds.

The **BARBEL** frequents the still and deep parts of rivers, and lives in society, rooting like swine with their noses in the soft banks. It is so tame as to suffer itself to be taken with the hand. In summer they move about during night in quest of food, but towards autumn, and during winter, confine themselves to the deepest holes.

They are the worst and coarsest of fresh-water fish, and seldom eaten but by the poorer sort of people. The roe affects those who eat it with a nausea and vomiting.

It is sometimes found of the length of three feet, and eighteen pounds in weight; it is of a long and rounded form; the scales not large.

The dorsal fin is armed with a remarkably strong spine, sharply serrated, with which it can inflict a very severe and dangerous wound, and even damage the nets.

The pectoral fins are of a palish brown colour; the ventral and anal tipped with yellow; the tail a little bifurcated, and of a deep purple; the side line is straight.

## THE GUDGEON

Is mostly found in gentle streams, and seldom reaches more than four ounces in weight, or measures more than six inches in length. We have heard of one that was taken near Uxbridge, which weighed 1½ a pound.

They bite eagerly, and are assembled by raking the bed of the river; to this spot they immediately crowd in shoals, expecting food from this disturbance. The shape of the body is thick and round.

The **RUD** is found in the Charwell, near Oxford, and in the Fens near Holderness. The body is very deep, and thicker than the bream. The head is small, the back vastly arched, the scales very large. The back is of an olive colour, the sides and belly gold; the ventral and anal fins of a very deep red.

The **CRUCIAN** is common in many of the fish-ponds about London, and other parts of the south of England; but we believe is not a native fish. It is very deep and thick; the back is much arched; the dorsal fin consists of nineteen rays; the two first strong and serrated. The pectoral fins have each thirteen rays; the lateral line parallel with the belly; the tail almost even at the end. The general colour is a deep yellow; the flesh is coarse and little esteemed.

The **DACE** is gregarious, haunts the same places, is

a great breeder, very lively, and during summer, is fond of frolicking on the surface of the water. It seldom exceeds a pound in weight, and the flesh is not much esteemed.

The BREAM is an inhabitant of lakes, or the deep parts of still rivers. The body is deep and thin in proportion to its length. The back is much elevated; and during spring the animal is sometimes covered with an abundance of whitish tubercles, an accident which Pliny seems to have observed befalls the fish of the Lago Maggiore, and Lago di Como. The back and fins are of a dusky hue, the sides yellowish and the tail represents a crescent. Its flesh is little esteemed.

The ROACH, in some parts of the world, is found only in stagnant waters; but in England it thrives equally in ponds and deep still rivers. It is a gregarious fish, and is remarkably prolific as well as vivacious and active; and hence the proverb—"sound as a roach." its  
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The roach is deep and thin, and the back rises much and is sharply ridged; the scales large, and fall off very easily. Side line bends much in the middle towards the belly.

## THE CHUB.

Salvianus imagines this fish to have been the *squatrus* of the ancients, and rests his opinion on a supposed error in a certain passage in Columella and Varro, where he would substitute the *squalus* instead of *scarus*.

That the *scarus* was not our chub, is very evident, not only because the chub is entirely an inhabitant of fresh waters, but also because it appears highly improbable that the Romans, who neglected some of the

most delicious kinds, would give themselves any trouble about the worst of river fish; all their attention was directed towards those of the sea; and the difficulty of procuring them was the criterion of their value, as is ever the case with effete luxury.

## THE BLEAK

Is very common in many of our rivers. They seldom exceed five or six inches in length; their body is slender, greatly compressed sideways, not unlike that of the sprat.

Artificial pearls are made with the scales of this fish.

## WHITE BAIT.

THERE are various conjectures about this species, but all agree in supposing them to be the fry of some fish, but are at a loss to which kind they owe their origin. Some attribute it to the shad, others to the sprat, the smelt, and the bleak. That they neither belong to the shad nor the sprat, is evident from the number of branchiostegous rays, which in those are eight, in this only three. That they are not the young of the smelt is equally clear, because they want the rayless fin; and that they are not the offspring of the bleak is very probable, since we never heard of the white bait being taken in any other river but the Thames, notwithstanding the bleak is very common in many of the British streams.

It has only three branchiostegous rays, and one dorsal fin; in respect to the form of its body it is compressed like that of the bleak, from which it is evident that it is of the carp genus.

Its usual length is two inches, and the under jaw



is longer than the upper; the dorsal fin is placed nearer to the head than to the tail, and consists of about fourteen rays; the side line is straight; the tail is forked. The head, sides, and belly, are silvery; the back tinged with green.

They are considered very delicious eating.

The MINNOW is frequently found in many of our small gravelly streams, where they keep in shoals.

The body is slender and smooth, the scales being extremely small; it seldom exceeds three inches in length.

The lateral line is of a golden colour; the back of a deep olive, and flat. The colour of the sides and belly vary greatly in different fish; in a few are of a rich crimson, in others white, in others bluish. The tail is forked, and marked near the base with a dusky spot.

## THE GOLD FISH.

THESE fish are now quite naturalized in Europe, and breed as freely in the open air as the common carp. They were first introduced into England about the year 1691, but they were not generally known till 1728.

In China the most beautiful kinds are taken in a small lake in the province of Che-Kyang. They are kept either in porcelain vases, or in the small basins that decorate the courts of the Chinese houses: and in England we frequently see them in glass vases, where they will live very well without food, provided their water is sometimes changed.

In the form of the body they bear a great resemblance to the carp. In China they are said to grow to the size of a large herring; and they have been known to arrive at the length of eight inches.

The nostrils are tubular, and form a sort of appendage above the nose; the dorsal fin and the tail vary greatly in shape. They are of various colours, but the general predominant colour is gold, of a most amazing splendour.

### THE TELESCOPE FISH.

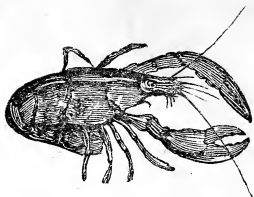
This beautiful fish is found in the fresh waters of China, and is supposed to be a variety of the gold fish. Its whole body, and the ground colour of the fins, are of a beautiful red, darker towards the back; the membranes of the fins are almost white; the three white rays of the tail form to the idea, a trident or a tulip. The head is short but large; the mouth small, and the nostrils single. The scales are large, the rays of the fins ramified. The pupil of the eye is black, the iris yellow; the back is round; the lateral line nearer the back than the head.

## CHAPTER III.

OF SHELL-FISH IN GENERAL. The Crustaceous Kind—The *Lobster*—The spiny Lobster—The *Crab*—The Land, Violet, and Soldier Crabs—The *Tortoise*—The Land Tortoise—The Turtle. Of Testaceous fishes—The *Turbinated*, or Snail kind—The Garden, Fresh water, and Sea Snail—The *Nautilus*. Of *Rivalved* Fish—The Oyster—The Cockle—The Scollop—The Razor Fish—Of Pearls and the Fishery. Of *Multivalve* Shell-Fish.—The Sea Urchin—The *Pholades*.

THERE are two classes of animals inhabiting the water which commonly receive the name of fishes, entirely different from those we have been describing, and also very distinct from each other. These are divided by naturalists into crustaceous and testaceous animals: both, totally unlike fishes in appearance, seem to invert the order of nature; and as those have their bones in the inside, and their muscles hung upon them for the purposes of life and motion, these, on the contrary, have all their bony parts on the outside, and all their muscles within. All who have seen a lobster, or an oyster, perceive that the shell in those bears a strong analogy to the bones of other animals; and that, by these shells, the animal is sustained and defended.

Crustaceous fish, such as the crab and the lobster, have a shell not quite of a stony hardness; but rather resembling a firm crust, and in some measure capable of yielding. Testaceous fishes, such as the oyster or cockle, are furnished with a shell of a stony hardness; very brittle and incapable of yielding. Of the crustaceous kinds are the lobster, the crab, and the tortoise; of the testaceous, that numerous tribe of oysters, muscles, cockles, and sea snails, which offer an infinite variety.



### THE LOBSTER.

HOWEVER different in figure the lobster and the crab may seem, their manners and conformation are the same. With all the voracious appetites of fishes, they are condemned to lead an insect life at the bottom of the water; and though pressed by continual hunger, they are often obliged to wait till chance brings them their prey. Though without any warmth in their bodies, or even red blood in their veins, they are animals wonderfully voracious. Whatever they seize upon that has life, is sure to perish, though ever so well defended; they will even eat one another; and what is still more surprising, they may in some degree, be said to devour themselves, as they change their shell and their stomach every year, and their old stomach is generally the first morsel that serves to glut the new.

The lobster is an animal of so extraordinary a form, that many at first sight are apt to mistake the head for the tail; but it is soon discovered that the animal moves with its claws foremost; and that the part which plays within itself by joints, like a coat of armour, is the tail. The mouth, like that of insects,

opens the long way of the body ; not cross-ways, as with man, and the higher race of animals. It is furnished with two teeth in the mouth ; but as these are not sufficient for the communication of its food, it has three more in the stomach ; one on each side, the other below. Between the two teeth there is a fleshy substance in the shape of a tongue. The intestines consist of one bowel, which reaches from the mouth to the vent ; but what this animal differs in from all others is, that the spinal marrow is in the breast bone. It is furnished with two long feelers or horns, that issue on each side of the head, that seem to correct the sight, and apprise the animal of its danger or its prey. The tail, or that jointed instrument at the other end, is the grand instrument of motion ; and with this it can raise itself in the water. Under this we usually see the spawn lodged in great abundance ; every pea adhering to the next by a very fine filament, which is scarcely perceivable.

Every lobster is an hermaphrodite, and is supposed to be self-impregnated. The ovary, or place where the spawn is first produced, is towards the tail, where a red substance is always found, and which is nothing but a cluster of peas, that are yet too small for exclusion. From this receptacle there go two canals, that open on each side at the jointures of the shell, at the belly ; and through these passages the peas descend to be excluded, and placed under the tail, where the animal preserves them from danger for some time, until they come to maturity ; when, being furnished with limbs and motion, they drop off into the water.

When the young lobsters leave the parent, they immediately seek for refuge in the smallest clefts of rocks, and in such like crevices at the bottom of the sea, where the entrance is but small, and the opening

can be easily defended. There, without seeming to take any food, in a few week's time they seem to grow larger, from the mere accidental substances which the water washes to their retreats. By this time also they acquire a hard firm shell, which furnishes them with both offensive and defensive armour. They then begin to issue from their fortresses, and boldly creep along the bottom, in hopes of meeting with diminutive plunder. The smaller animals of their own kind, the spawn of fish, but chiefly the worms that keep at the bottom of the sea, supply them with food. They keep in this manner close among the rocks, busily employed in scratching up the sand with their claws for worms, or surprising such heedless animals as fall within their grasp ; thus they have little to apprehend, except from each other ; for in them, as among fishes, the large are the most formidable of all enemies to the small.

But this life of abundance and security is soon to have a most dangerous interruption ; for the body of the lobster still continuing to increase, while its shell remains unalterably the same, the animal becomes too large for its habitation, and imprisoned within the shell that has naturally gathered round it, there comes on a necessity of getting free. The young of this kind, therefore, that grow faster, as we are assured by the fishermen, change their shell oftener than the old, who come to their full growth, and who remain in the same shell often for two years together. In general, however, all these animals change their shell once a year ; and this is not only a most painful operation, but also subjects them to every danger. Just before casting its shell, it throws itself upon its back, strikes its claws upon each other, and every limb seems to tremble ; its feelers are agitated, and the whole body is in violent motion ; it then swells

itself in an unusual manner, and at last the shell is seen to divide at its junctures. It also seems turned inside out; and its stomach comes away with the shell. After this, by the same operation, it disengages itself of the claws, which burst at the joints; casting them off as a man would kick off a boot that was too big for him.

Thus, in a short time, this surprising creature finds itself at liberty; but so weak and enfeebled, that it continues for several hours motionless. Indeed, so painful and violent is the operation, that many of them die under it; and those which survive are in such a weakly state for some time, that they neither take food nor venture from their retreats.

Immediately after this change, they have both the softness and timidity of the worm. Every animal of the deep is then a powerful enemy, which they can neither escape nor oppose; and this is the time when the dog-fish, the cod, and the ray, devour them by hundreds. This state, however, continues but for a short time; the animal, in less than two days, is seen to have the skin that covered its body grown almost as hard as before; its appetite increases; and what is most surprising, the first object that tempts its gluttony is its own stomach, which it so lately was disengaged from. This it devours with great eagerness; and, some time after, eats even its former shell. In about forty-eight hours, in proportion to the animal's strength, the new shell is formed, and becomes as hard as that just thrown aside.

When the lobster is thus completely equipped in its new shell, it then appears how much it has grown in the space of a very few days; the dimensions of the old shell being compared with those of the new, it will be found that the creature is increased above a third in its size; and it appears surprising how the

deserted shell was able to contain so great an animal as entirely fills up the new.

The lobster being thus furnished with a complete covering, ventures more boldly among the animals at the bottom ; and not a week passes that in its combats it does not suffer some mutilation : a joint, or even a whole claw is sometimes snapped off in these encounters. In the space of three weeks, however, another claw grows to be almost as large and as powerful as the old one. We say almost as large, for it never arrives to its full size.

The shell is black when taken out of the water, but, when boiled, becomes red.

The most common way of taking the lobster is with a basket, or pot, as the fishermen call it, made of wicker work, in which they put the bait, and then throw it to the bottom of the sea in six or ten fathoms water. The lobsters creep into this for the sake of the bait, but are not able to get out of it again.

The RIVER CRAW-FISH differs little from the lobster, but that the one will live only in fresh water, and the other will thrive only in the sea.

The SPINY LOBSTER only differs by the offensive armour which it bears upon its back and its claws.

## THE CRAB.

As this animal is found upon land as well as in the water, the peculiarity of its situation produces a difference in its habitudes which it is proper to notice.

The LAND CRAB is found in some of the warmer regions of Europe, and in great abundance in all the tropical climates of Africa and America. They are of various kinds, and endued with various properties,



some being healthful, delicious, and nourishing food; others poisonous or malignant to the last degree; some are not above half an inch broad; others are found a foot over; some are of a dirty brown, and others beautifully mottled.

The VIOLET CRAB, of the Caribbee Islands, is the most noted, both for its shape, the delicacy of its flesh, and the singularity of its manners.



It somewhat resembles two hands cut through the middle and joined together; for each side looks like four fingers, the two claws resemble the thumbs. All the rest of the body is covered with a shell as large as a man's hand, and bunched in the middle, on the fore part of which there are two long eyes of the size of a grain of barley, as transparent as crystal, and as hard as horn. A little below these is the mouth, covered with a sort of barbs, under which there are two broad, sharp teeth, as white as snow. They are not placed cross-ways, as in other animals, but in the opposite direction, not much unlike the blade of a pair of scissors. With these teeth they can easily cut leaves, fruit, and rotten wood, which is their usual food. But their principal instrument for cutting and seizing their food is their nippers, which

catch such a hold, that the animal loses the limb sooner than its grasp, and is often seen scampering off, having left its claw still holding fast upon the enemy. In fact it loses no great matter by leaving a leg or an arm, for they soon grow again, and the animal is found as perfect as before.

But this is the least surprising part of this creature's history. They live not only in a kind of society in their retreats in the mountains, but regularly once a year march down to the sea side, in a body of some millions at a time. As they multiply in great numbers, they choose the months of April or May to begin their expedition; and then sally out by thousands from the stumps of hollow trees, the clefts of rocks, and from the holes which they dig for themselves under the surface of the earth. At that time the whole ground is covered with this band of adventurers; there is no stepping without treading upon them. They direct their march with right-lined precision. They neither turn to the right nor left, whatever obstacles intervene; and even if they meet with a house, they will attempt to scale the walls, to keep the unbroken tenor of their way.

But though this be the general order of their route, they are sometimes obliged to conform to the face of the country; and if it be intersected by rivers, they are then seen to wind along the course of the stream. The procession sets forward from the mountains with the regularity of an army under the guidance of an experienced commander. They are commonly divided into three battalions; of which the first consists of the strongest and boldest males, that, like pioneers, march forward to clear the route, and face the greatest danger. These are often obliged to halt for want of rain, and go into the most convenient encampment till the weather changes.

The main body of the army is composed of females, which never leave the mountains till the rain is set in for some time, and then descend in regular battalia, being formed into columns of fifty paces broad, and three miles deep, and so close that they almost cover the ground. Three or four days after this, the rear guard follows; an undisciplined, straggling tribe, consisting of males and females, but neither so robust nor so numerous as the former. The night is their chief time of proceeding: but if it rains by day they do not fail to profit by the occasion. When the sun shines and is hot upon the surface of the ground, they then make a universal halt, and wait till the cool of the evening.

When they are terrified, they march back in a confused, and disorderly manner, holding up their nippers, with which they sometimes tear off a piece of the skin, and then leave the weapon where they inflicted the wound. They even try to intimidate their enemies; for they often clatter their nippers together, as if it were to threaten those that come to disturb them.

But though they thus strive to be formidable to man, they are much more so to each other; for they are possessed of one most unsocial property, which is, that if any of them by accident is maimed in such a manner as to be incapable of proceeding, the rest fall upon and devour it on the spot, and then pursue their journey.

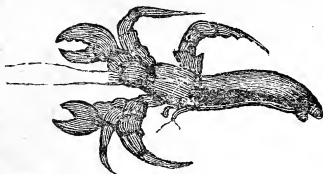
When after a fatiguing march, and escaping a thousand dangers, for they are sometimes three months in getting to the shore, they have arrived at the destined port, they prepare to cast their spawn. The peas are as yet within their bodies, and not excluded, as is usual in animals of this kind, under the tail; for the creature waits for the benefit of the sea-

water to help the delivery. For this purpose, the crab has no sooner got to the shore, than it eagerly goes to the edge of the water, and lets the waves wash over its body two or three times.

This seems only a preparation for bringing their spawn to maturity: for without further delay they withdraw to seek a lodging upon the land; in the meantime the spawn grows larger, is excluded out of the body, and sticks to the barbs under the flab, or more properly the tail. This bunch is seen as big as a hen's egg, and exactly resembling the roes of herrings. In this state of pregnancy they once more seek the shore, for the last time, and shaking off their spawn into the water, leave accident to bring it to maturity. Whole shoals of hungry fish at this time are near the shore, and about two-thirds of the crab's eggs are immediately devoured by these rapacious invaders. The eggs that escape are hatched under the sand, and soon after many millions at a time of these little crabs are seen quitting the shore, and slowly travelling up to the mountains.

The old ones, however, are not so active to return; they have become so feeble and lean, that they can hardly crawl along, and the flesh at that time changes its colour. Most of them, therefore are obliged to continue in the flat parts of the country, till they recover, making holes in the earth, which they cover at the mouth with leaves and dirt, so that no air may enter. There they throw off their old shells, which they leave as it were quite whole, the place where they are opened on the belly being unseen. At that time they are quite naked, and almost without motion for six days together, when they become so fat as to be delicious food. They have then under their stomachs four large white stones, which gradually decrease in proportion as the shell hardens,

and when they come to perfection are not to be found. It is at that time that the animal is to be seen slowly making its way back ; and all this is most commonly performed in six weeks.



The SOLDIER CRAB in like manner descends from its mountains, but for purposes still more important and various. Its descent is not only to produce an offspring, but to provide itself a covering ; not only to secure a family, but to furnish a house.

It has some similitude to the lobster, if divested of its shell. It is generally four inches long, has no shell behind, but is covered down to the tail with a rough skin terminating in a point. It is, however, armed with strong hard nippers before, like the lobster ; and one of them is as thick as a man's thumb, and pinches most powerfully. It is, as was said, without a shell to any part except its nippers ; but what nature has denied this animal it takes care to supply by art ; and taking possession of the deserted shell of some other animal, it resides in it, till by growing too large for its habitation, it is under the necessity of change.

It is a native of the West India Islands, and, like the former, is seen every year descending from the mountains to the sea shore, to deposit its spawn, and

to provide itself with a new shell. This is a most bustling time with it, having so many things to do. It is very probable that its first care is to provide for its offspring before it attends to its own wants; and it is thought, from the number of shells it is seen examining, that it deposits its spawn in them, which thus is placed in perfect security till the time for exclusion.

Yet it is not only till after many trials, but many combats also, that the soldier is completely equipped; for there is often a contest between two of them for some well-looking favourite shell for which they are rivals. They both endeavour to take possession; they strike with their claws; they bite each other, till the weakest is obliged to yield, by giving up the object of dispute. It is then that the victor immediately takes possession, and parades in his new conquest three or four times back and forward upon the strand before his envious antagonist.

When this animal is taken, it sends forth a feeble cry, endeavouring to seize the enemy with its nippers; which if it fastens upon, it will sooner die than quit the grasp. The wound is very painful and not easily cured.

## TORTOISES

ARE usually divided into those that live upon land, and those that subsist in the water; and use has made a distinction even in the name; the one being called tortoises, the other turtles. Seba, however, has proved that all tortoises are amphibious; that the land tortoise will live in water, and the sea turtle will live upon land.

A land tortoise was brought to him that was caught in one of the canals of Amsterdam, which he

Kept for half a year in his house, where it lived very well contented in both elements. When in the water, it remained with its head above the surface; when placed in the sun, it seemed delighted with its beams, and continued immoveable while it felt their warmth. The difference, therefore, in these animals, arises rather from their habits than their conformation; and, upon examination, there will be less variety found between them than birds that live upon land, and that swim upon water.



All tortoises, in their external form, much resemble each other; their outward covering being composed of two great shells, the one laid upon the other, and only touching at the edges; however, when we come to look closer, we shall find that the upper shell is composed of no less than thirteen pieces. There are two holes at either edge of this vaulted body; one for a very small head, shoulders, and arms, to peep through, the other at the opposite edge for the feet and the tail. These shells the animal is never disengaged from; and they serve for its defence against every creature but man.

The LAND TORTOISE is generally found from one to five feet long, from the end of the snout to the end of the tail; and from five inches to a foot and a

half across the back. It has a small head, somewhat resembling that of a serpent; an eye without the upper lid; the under eye-lid serving to cover and keep that organ in safety. It has a strong scaly tail, like the lizard. Its head the animal can put out and hide at pleasure, under the great penthouse of its shell, there it can remain secure from all attacks. As the tortoise lives wholly upon vegetable food, it never seeks the encounter; yet, if any of the smaller animals attempt to invade its repose, they are sure to suffer. The tortoise, impreguably defended, is furnished with such a strength of jaw, that, though armed only with bony plates instead of teeth, wherever it fastens it infallibly keeps its hold until it has taken out the piece.

Though peaceable in itself, it is formed for war in another respect, for it seems almost endued with immortality. Nothing can kill it; the depriving it of one of its members is but a slight injury; it will live though deprived of the brain; it will live though deprived of its head.

Tortoises are commonly known to exceed eighty years; and there was one kept at the Archbishop of Canterbury's gardens, at Lambeth, that was remembered above a hundred and twenty. It was at last killed by the severity of the frost, from which it had not sufficiently defended itself in its winter retreat.

Though there is a circulation of blood in the tortoise, yet as the lungs are left out of the circulation, the animal is capable of continuing to live without continuing to breathe. In this it resembles the bat, the serpent, the mole, and the lizard; like them it takes up its dark residence for the winter, and, at that time, when its food is no longer in plenty, it happily becomes insensible to want. But it must not be supposed, that while it is thus at rest, it to-



tally discontinues to breathe; on the contrary, an animal of this kind, if put into a close vessel without air, will soon be stifled; though not so readily as in a state of vigour and activity.

The eggs of all the tortoise kind, like those of birds, are furnished with a yolk and a white; but the shell is different, being somewhat like those soft eggs that hens exclude before their time; however, this shell is much thicker and stronger, and is a longer time in coming to maturity in the womb. The land tortoise lays but a few in number, if compared to the sea turtle, who deposits from one hundred and fifty to two hundred in a season.

The amount of the land tortoise's eggs we have not been able to learn; but, judging from the scarceness of the animal, we think they cannot be very numerous.

When it prepares to lay, the female scratches a slight depression in the earth, usually in a warm situation, where the beams of the sun have their full effect. There depositing her eggs, and covering them with grass and leaves, she forsakes them to be hatched by the heat of the season.

The young tortoises are generally excluded in about twenty-six days, but, as the heat of the weather assists, or its coldness retards incubation, sometimes it happens that there is a difference of two or three days. The little animals no sooner leave the egg, than they seek their provision entirely self-taught; and their shell, with which they are covered from the beginning, expands and grows larger with age. As it is composed of a variety of pieces, they are capable of expansion at their sutures; and the shell admits of increase in every direction.

It is common enough to take these animals into gardens, as they are thought to destroy insects and

snails in great abundance. We are even told that, in hot countries, they are admitted into a domestic state, as they are great destroyers of bugs.

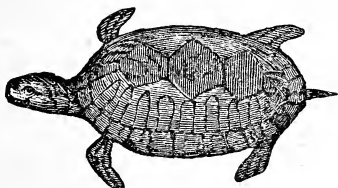
The SEA TORTOISE, or *turtle*, is generally found larger than the former.

The great MEDITERRANEAN TURTLE is the largest of the kind with which we are acquainted. It is found from five to eight feet long, and from 600 to 900 pounds weight; but unfortunately its utility bears no proportion to its size, as it is unfit for food, and sometimes poisons those who eat it. The shell also, which is a strong, tough integument, resembling a hide, is unfit for all serviceable purposes.

One of these animals was taken in the year 1729, at the mouth of the Loire, in nets that were not designed for so large a capture. It was of enormous strength, and by its own struggles, involved itself in the nets in such a manner, as to be incapable of doing mischief; yet, even when thus shackled, it appeared terrible to the fishermen, who were at first for flying; but finding it impotent, they drew it on shore, where it made a most horrible bellowing; and when they began to knock it on the head, it was to be heard at half a mile's distance. They were still further intimidated by its nauseous and pestilential breath, which so powerfully affected them, that they were near fainting. This animal wanted but four inches of being eight feet long, and was about two feet over; its shell more resembled leather than the shell of a tortoise; and unlike all other animals of this kind, it was furnished with teeth in each jaw, one rank behind the other, like those of a shark; its feet also, different from the rest of this kind, wanted claws; and the tail was quite disengaged from the shell, and fifteen inches long, more resembling that of a quadruped than a tortoise.

These are a formidable and useless kind, if compared to the turtle caught in the South Seas and the Indian Ocean. These are of different kinds, not only unlike each other in form, but furnishing man with very different advantages. They are usually distinguished by sailors into four kinds—the trunk turtle, the loggerhead, the hawksbill, and the green turtle.

The hawksbill turtle is the least of the four, and has a long and small mouth, somewhat resembling the bill of a hawk. Its flesh is also very indifferent eating; but its shell serves for the most valuable purposes; being that out of which so many beautiful trinkets and other fancy articles are manufactured.



THE TURTLE.

But of all animals of the tortoise kind, the green turtle is the most noted and the most valuable, from the delicacy of its flesh and its nutritive qualities, together with the property of being easily digested. It is generally found about two hundred weight; though some are five hundred, and others not above fifty.

This animal seldom comes from the sea but to deposit its eggs. Its chief food consists of the mangrove, the blackwood tree, and other marine plants. When the weather is fair, the turtles are sometimes seen feeding in great numbers, like flocks of sheep, several fathoms deep. They frequent the creeks and shallows, where they are usually taken; but they are very shy of boats and men, and swim remarkably fast.

When the time for laying approaches, the female is seen, towards the setting of the sun, drawing near the shore, and looking earnestly about her, as if afraid of being discovered. When she perceives any person on shore, she seeks for another place: but if otherwise, she lands when it is dark, and goes to take a survey of the sand where she designs to lay. Having marked the spot, she goes back without laying, but the next night returns to deposit a part of her burthen. She begins by working and digging in the sand with her fore-feet, till she has made a round hole a foot and a half deep, and a foot broad, just at the place a little above, where the water reaches highest. This done, she lays eighty or ninety eggs at a time, each as big as a pigeon's. The eggs are covered with a tough white skin, like wetted parchment. When she has done laying, she covers the hole so dexterously, that it is no easy matter to find the place. She then returns to the sea, and leaves her eggs to be hatched by the heat of the sun.

At the expiration of fifteen days she again returns and lays about the same number of eggs; and at the end of another fifteen days she repeats the same; three times in all, using the same precautions every time for their safety.

In about twenty-four or twenty-five days after laying, the eggs are hatched by the heat of the sun;

and the young turtles, being about as big as quails, are seen bursting from the sand, as if earth-born, and running directly to the sea, with instinct only for their guide; but, unfortunately for them, it often happens that their strength being small, the surges of the sea for some days beat them back upon the shore. Thus exposed, they remain a prey to thousands of birds that haunt the coasts; and these stooping down upon them, carry off the greatest part, and sometimes the whole brood, before they have strength sufficient to withstand the waves or dive to the bottom.

They are generally caught in two ways—by nets, and by what is called pegging. The peg is of iron, and something larger than a ten-penny nail, and without a barb; to this is affixed an iron socket, in which is inserted a long pole, and the peg is held by a tolerably strong line. When the turtle is struck, the pole is disengaged, and the turtle drawn to the boat by the line.

There is yet another which, though seemingly awkward, is said to be attended with great success. A good diver places himself at the head of a boat, and when the turtles are observed asleep on the surface, which they sometimes are in great numbers, he immediately quits the vessel at about fifty yards distance, and keeping still under water, directs his course to where the turtle was seen, and coming up beneath, seizes it by the hind fin; the animal awaking, struggles to get free; and by this both are kept at the surface until the boat arrives to take them in.

## TESTACEOUS FISHES.

THE shell of this kind of fishes may be considered as an habitation supplied by nature. It is an hard stony substance, made by some in the manner of a wall. Part of the stony substance the animal derives from outward objects, and the fluids of the animal itself furnish the cement. These, united, make that firm covering which shell fish generally reside in till they die.

But in order to give a more correct idea of the manner in which sea shells are formed, we must have recourse to an animal that lives upon land, with the formation of whose shell we are best acquainted. This is the garden-snail, that carries its box upon its back.

To begin with the animal in its earliest state, and trace the progress of its shell from the time it first appears. The moment the young snail leaves the egg, it carries its shell or its box upon its back. It does not leave the egg till it has arrived at a certain growth, when its little habitation is sufficiently hardened. This beginning of the shell is not much bigger than a pin's head, but grows in a very rapid manner, having at first but two circumvolutions, the rest being added as the snail grows larger. In proportion as the animal increases in size, the circumvolutions of the shell increase also, until the number of those volutes come to be five, which is never exceeded.

The part where the animal enlarges its shell is at the mouth, to which it adds in proportion as it finds itself stinted in its habitation below. Being about to enlarge its shell, it is seen with its little teeth biting and clearing away the scaly skin that grows at

the edges. It is sometimes seen to eat those bits it thus takes off; and at other times it only cleans away the margin when covered with films, and then adds another rim to its shell.

For the purposes of making the shell which is natural to the animal, and without which it would not live three days, its whole body is furnished with glands, from the orifices of which flows out a kind of slimy fluid, like small spider's threads, which join together in one common crust or surface, and in time condense and acquire a stony hardness. It is this slimy humour that grows into a membrane and afterwards a stony skin, nor can it have escaped any who have observed the track of a snail, that glistening substance which it leaves on the floor or the wall is no other than the materials with which the animal adds to its shell, or repairs it when broken.

With respect to the figure of shells, Aristotle has divided them into three kinds; and his method is, above all others, the most conformable to nature. These are,

First, the *Univalve*, or *Turbinated*, which consist of one piece, like the box of a snail;

Secondly, the *Bivalve*, consisting of two pieces united by a hinge, like an oyster;

Thirdly, the *Multivalve*, consisting of more than two pieces, as the acorn shell, which has not less than twelve pieces that go to its composition.

All these kinds are found in the sea at different depths; and are valuable in proportion to their scarceness or beauty.

All shells are formed of an animal or calcareous earth, that ferments with vinegar and other acids, and that burns into lime, and will not easily melt into glass.

## UNIVALVE, OR TURBINATED SHELL FISH.

To conceive the manner in which these animals subsist, that are hid from us at the bottom of the deep, we must again have recourse to one of a similar nature and formation that we know, viz.



### THE GARDEN SNAIL.

It is furnished with the organs of life in a manner almost as complete as the largest animal; with a tongue, brain, salival ducts, glands, nerves, stomach and intestines, liver, heart and blood-vessels: besides these, it has a purple bag that furnishes a red matter to different parts of the body, together with strong muscles that hold it to the shell, and which are hardened, like tendons, at their insertion.

But these it possesses in common with other animals, we must now see what it has peculiar to itself. The first striking peculiarity is, that the animal has got its eyes on the points of its largest horns. When the snail is in motion, four horns are distinctly seen; but the two uppermost and largest deserve peculiar consideration, both on account of the various motions with which they are endued, as well as the



having their eyes fixed on the extreme points of them.

Its eyes the animal can direct to different objects at pleasure, by a regular motion out of the body: and sometimes it hides them by a very swift contraction into the belly. Under the small horns is the animal's mouth; and though it may appear too soft a substance to be furnished with teeth, yet it has not less than eight of them, with which it devours leaves and other substances, seemingly harder than itself; and with which it sometimes bites off pieces of its own shell.

At the expiration of eighteen days after coition, the snails produce their eggs, and hide them in the earth with the greatest solicitude and industry. These eggs are in great numbers, round, white, and covered with a soft shell; they are also stuck to each other by an imperceptible slime, like a bunch of grapes, of about the size of a very small pea.

The snail is possessed not only of the power of retreating into its shell, but of mending it when broken. Sometimes these animals are apparently crushed to pieces, and to all appearance utterly destroyed; yet still they set themselves to work, and, in a few days, mend all their numerous breaches. The same substance by which the shell is originally made, goes to the re-establishment of the ruined habitation.

As the snail is furnished with all the organs of life and sensation, it is not wonderful to see it very voracious. It chiefly subsists upon the leaves of plants and trees, but is very delicate in its choice. At the approach of winter it buries itself in the earth, or retires to some hole to continue in a torpid state during the severity of the season. It is sometimes seen alone, but more frequently in company in its retreat; several being usually found together apparently de-

prived of life and sensation. For the purpose of continuing in greater warmth and security, the snail forms a cover or lid to the mouth of its shell with its slime, which stops it up entirely, and thus protects it from every external danger. When the cover is too thick, the snail then breaks a little hole in it, which corrects the effects of that closeness, which proceeded from too much caution. In this manner, sheltered in its hole from the weather, defended in its shell by a cover, it sleeps during the winter; and for six or seven months continues without food or motion, until the genial call of spring breaks its slumber, and excites its activity.

The snail, having slept for so long a season, awakes one of the first fine days in April: breaks open its cell, and sallies forth in search of food; almost any vegetable that is green seems welcome; but the succulent plants of the garden are chiefly grateful, and the various kinds of pulse are, at some seasons, almost wholly destroyed by their numbers.

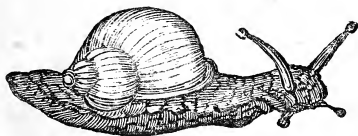
A wet season is generally favourable to their production; for this animal cannot bear dry seasons, or dry places, as they cause too great a consumption of its slime, without plenty of which it cannot subsist in health and vigour.

Such are the most striking particulars in the history of this animal; and this will suffice as a general picture, to which the manners and habitudes of the other tribes of this class may be compared and referred. These are the sea snail, of which naturalists have, from the apparent difference of their shells, mentioned fifteen kinds; the fresh-water snail, of which there are eight kinds; and the land snail, of which there are five; and these all bear a strong resemblance to the garden snail.

## ALL SNAILS THAT LIVE IN WATER

ARE peculiarly furnished with a contrivance by Nature, for rising to the surface, or sinking to the bottom.

This is performed by opening and shutting an orifice on the right side of the neck, which is furnished with muscles for that purpose. The animal sometimes gathers this aperture into an oblong tube, and stretches or protends it above the surface of the water, in order to draw in or expel the air, as it finds occasion. This may not only be seen, but heard also by the noise which the snail makes in moving the water. By dilating this it rises; by compressing it, the animal at once sinks to the bottom. But what renders these animals far more worthy of notice is, that they are viviparous, and bring forth their young not only alive, but with their shells upon their backs. This seems surprising, yet it is incontestably true: the young come to some perfection in the womb of the parent; there they receive their stony coat; and thence are excluded, with a complete apparatus for its subsistence.



This striking difference between the fresh-water and the garden snail, obtains also in some of

### THE SEA KIND.

AMONG which there are some that are found viviparous, while others lay eggs in the usual manner. But this is not the only difference between land and sea snails. Many of the latter entirely want horns, and none of them have above two. Indeed, if the horns of snails be furnished with eyes, and if, as some are willing to think, the length of the horn, like the tube of a telescope, assists vision, these animals, that chiefly reside at the bottom of the deep, can have no great occasion for them. Eyes would be unnecessary to creatures whose food is usually concealed in the darkest places; and who, possessed of very little motion, are obliged to grope for what they subsist on.

There is also a difference in the position of the mouth, in the garden and the water snail. In the former, the mouth is placed cross-wise, as in quadrupeds; furnished with jaw-bones, lips, and teeth. In most of the sea-snails, the mouth is placed longitudinally in the head; and in some, obliquely, or on one side. Others of the trochus kind, have no mouth whatsoever; but are furnished with a trunk, very long in some kinds, and shorter in others.

### THE NAUTILUS.

OF all sea-snails, that which is the most easily pierced, and is most frequently seen swimming upon the surface, is the nautilus.

Although there are several species of this animal, yet they all may be divided into two: the one with

a white shell, as thin as paper, which it is often seen to quit, and again to resume; the other with a thicker shell, sometimes of a beautiful mother-of-pearl colour, and that quits its shell but rarely.

This shell outwardly resembles that of a large snail, but is generally six or eight inches across; within it is divided into thirty partitions, that communicate with each other by doors, if we may so call them, through which one could not thrust a goose quill; almost the whole internal part of the shell is filled by the animal, the body of which, like its habitation, is divided into as many parts, as there are chambers in its shell; all the parts of its body communicate with each other, through the doors or openings, by a long blood-vessel, which runs from the head to the tail; thus the body of the animal, if taken out of the shell, may be likened to a number of soft bits of flesh, of which there are forty threaded on a string.

From this extraordinary conformation, one would not be apt to suppose that the nautilus sometimes quitted its shell, and returned to it again; yet nothing is more certain. The manner by which it contrives to disengage every part of its body from so complicated an habitation, is at present a mystery; but the fact is certain; for the animal is often found without its shell; and the shell more frequently destitute of the animal. It is most probable that it has a power of making the substance of one section of its body remove up into that which is next; and thus by multiplied removals, it gets free.

But this is not the chief peculiarity of the nautilus. Its spreading the thin oar, and catching the passing breeze, has chiefly excited human curiosity. These animals, particularly those of the white, light kind, are chiefly found in the Mediterranean. When the sea is calm, they are observed floating on the surface,

some spreading their little sail, some rowing with their feet, and others still, floating upon their mouths, like a ship with the keel upwards.

The nautilus is furnished with eight feet, which issue near the mouth, and may as properly be called barbs; these are connected to each other by a thin skin, like that between the toes of a duck, but much thinner and more transparent. Of these eight feet thus connected, six are short, and these are held up to catch the wind in sailing; the two others are longer, and are kept in the water; serving, like paddles, to steer their course by. When the weather is quite calm, and the animal is pursued from below, it is then seen expanding only a part of its sail, and rowing with the rest; whenever it is interrupted, or fears danger from above, it instantly furls the sail, catches in all its oars, turns its shell mouth downwards, and instantly sinks to the bottom. Sometimes also it is seen pumping the water from its leaking hulk, and, when unfit for sailing, deserts its shell entirely. The forsaken hulk, is seen floating along, till it dashes, by a kind of shipwreck, upon the rocks or upon the shore.



## BIVALVED SHELL-FISH.

### THE MUSCLE,

WHETHER belonging to fresh or salt water, consists of two equal shells, joined at the back by a strong muscular ligament that answers all the purposes of a hinge. By the elastic contraction of this, the animal can open its shell at pleasure, at about a quarter of an inch from each other. The fish is fixed to

either shell by four tendons, by means of which it shuts them close, and keeps its body from being crushed by any shock against the walls of its own habitation. It is furnished, like all other animals of this kind, with vital organs, though these are situated in a very extraordinary manner. It has a mouth furnished with two fleshy lips; its intestines begin at the bottom of the mouth, pass through the brain, and make a number of circumvolutions through the liver; on leaving this organ it goes straight into the heart, which it penetrates and ends in the anus, near which the lungs are placed, and through which it breathes, like those of the snail kind; and in this manner its languid circulation is carried on.

The number of these animals in some places is very great; but, from their defenceless state, the number of their destroyers is in equal proportion.

But notwithstanding the number of this creature's animated enemies, it seems still more fearful of the agitation of the element in which it resides, for if dashed against the rocks, or thrown far on the beach, it is destroyed without a power of redress. In order to guard against these, which are to this animal the commonest and the most fatal accidents, although it has the power of slow motion, yet it endeavours to become stationary, and to attach itself to any object it happens to be near. For this purpose it is furnished with a very singular capacity of binding itself to whatever object it approaches; and these Reamur supposes it spun artificially, as spiders their webs, which they fasten against a wall. Of this, however later philosophers have found very great reason to doubt. It is therefore supposed that these threads, which are usually termed the beard of the muscle, are the natural growth of the animal's body, and by no means produced at pleasure.

Its instrument of motion, by which it contrives to reach the object it wants to bind itself to, is that muscular substance resembling a tongue, which is found long in proportion to the size of the muscle. In some it is two inches long, in others not a third part of these dimensions. This the animal has a power of thrusting out of its shell; and with this it is capable of making a slight furrow in the sand at the bottom. By means of this furrow, it can erect itself upon the edge of its shell; and thus continuing to make the furrow in proportion as it goes forward, it reaches out its tongue, that answers the purpose of an arm, and thus carries its shell edgeways, as in a groove, until it reaches the point intended. There where it determines to take up its residence, it fixes the ends of its beard, which are glutinous, to the rock or the object, and thus braves all the agitation of the water.

The beards have been seen a foot and a half long; and of this substance the natives of Palermo sometimes make gloves and stockings.

These shell fish are found in lakes, rivers, and in the sea. Those of the lake often grow to a very large size; those of the rivers are not so large, but yet in greater abundance; but the sea muscle is in most plenty.

The sea muscle is often bred artificially in salt water marshes that are overflowed by the tide: the fishermen throwing them in at proper seasons, and not being disturbed by the agitations of the sea, or preyed upon by their powerful enemies at the bottom, they cast their eggs, which soon become perfect animals, and these are generally found in clusters of several dozens together.

It requires a year for the peopling of a muscle-bed; and they are taken from their beds from the



month of July to October, and are sold at a very moderate price.

## THE OYSTER.

THIS animal differs but little from the preceding, except in the thickness of its shell, and its greater imbecility. It is, like the muscle, formed with organs of life and respiration, with intestines which are very voluminous, a liver, lungs, and heart. Like the muscle it is self-impregnated, and the shell, which the animal soon acquires, serves it for its future habitation. Like the muscle it opens its shell to receive the influx of water, and like that animal is strongly attached to its shell both above and below.

The oyster differs from the muscle in being utterly unable to change its situation. It is entirely without that tongue which we saw answering the purposes of an arm in the other animal; but nevertheless is often attached very firmly to any object that it happens to approach. Nothing is so common as to see it hanging even on the branches of the trees in the tropical climates. Many trees, which grow along the banks of the stream, often bend their branches into the water, and particularly the mangrove, which chiefly delights in a moist situation. To these the oysters hang in clusters, like apples upon the most fertile tree; and in proportion as the weight of the fish sinks the plant into the water, where it still continues growing, the number of oysters increase, and hang upon the branches. This is effected by means of a glue proper to themselves, which, when it cements, the joining is as hard as the shell, and is as difficultly broken.

Oysters usually cast their spawn in May, which at first appears like drops of candle-grease, and sticks

to any hard substance it falls upon. These are covered with a shell in two or three days; and in three years the animal is large enough to be brought to market.

The oysters which, at Colchester and other parts of England, are deposited in beds, and which are first gathered in great quantities along the shore, are by no means so large as those found sticking to rocks at the bottom of the sea, usually called rock-oysters. These are sometimes found as broad as a plate, and are admired as excellent food. But these are nothing when compared to the oysters of the East Indies, some of whose shells we have seen two feet over. The oysters found along the coast of Coromondel are capable of furnishing a plentiful meal to eight men.

## THE SCALLOP

Is particularly remarkable for its method of moving forward upon the land, or swimming upon the surface of the water. When this animal finds itself deserted by the tide, it makes very remarkable efforts to regain the water, moving towards the sea in a most singular manner. It first gapes with its shell as widely as it can, the edges being often an inch asunder; when it shuts them with a jerk, and by this the whole animal rises five or six inches from the ground. It thus tumbles any way forward, and then renews the operation till it has attained its journey's end.

When in the water it is capable of supporting itself upon the surface; and there opening and shutting its shell, it makes its way with some celerity.

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